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Synopsis of the PHILONTHI of Boreal America.

By George H. Horn, M. D.

The term Philonthi is here used with the scope given to the genus Philonthus by Erichson. Before that author's time several genera had been suggested which he did not consider valid. Since then the number of species has been so greatly increased that some division seems absolutely necessary. While the subject may be open to discussion whether the divisions are really genera, it is none the less convenient to know them by separate names. The division proposed by Fauvel (Faune Gallo-Rhénane) as far as represented by species in our fauna is as follows:

First joint of hind tarsi as long or longer than the fifth.
Last joint of maxillary palpi slender and acicular..... **Philonthus.**
Last joint of maxillary palpi flattened, oval, elongate, inner side more convex. **Cafius.**
First joint of hind tarsi shorter than the fifth, joints 1–4 decreasing gradually in length.
Last joint of maxillary palpi elongate, conical **Actobius.**

In addition to these three Fauvel places two of our species (*baltimorensis* and *apicalis*) in his genus Hesperus, the characters of which are not at all evident as far as our species are concerned.

The material for the present paper has been obtained from my own cabinet, supplemented by that of Dr. LeConte, with additions from Mr. Henry Ulke, of Washington, and a good series from Mr. E. A. Schwarz of the Agricultural Department.

To Mr. A. Fauvel, of Caen, France, I am greatly indebted for the loan of many species from his cabinet bearing manuscript names, enabling me to place his material in relation with our own. I have in the majority of cases adopted his manuscript names, and have made exceptions in those cases only in which I have distributed specimens bearing names of my own suggestion.

A few words regarding the history of this paper may not be inappropriate here. About a year ago Dr. LeConte desired to give a synoptic table of species of Philonthus, as he had already done with several other genera in his "Short Studies." The material was prepared, the sexes of the specimens carefully indicated, and the species separated with a considerable degree of accuracy. Finding the work too great a tax on his eyesight, and as he was unable to use a pen, except with great difficulty, he desired me to complete the paper, so that the labor already expended should not be lost. Although engaged in other studies I yielded

to his solicitation, and found the work far greater than he anticipated. In fact, beyond the convenient arrangement of the material I was compelled to begin the work entirely anew, and the results of my study are here given, with the hope that something more useful is presented than mere descriptions of new species.

PHILONTHUS Curtis.

In this genus, as at present restricted, the terminal point of the maxillary palpi is slender and acicular, longer than the third joint. The posterior tarsi have the first and fifth joints either equal, or with the first a little longer, the intermediate joints short, and together rarely longer than the first joint.

With Philonthus I have united those species, referred by Fauvel, to Hesperus, as I am unable to see that the metasternum in them differs in any marked degree from very many other species.

After separating Cafius and Actobius, the genus Philonthus remains very largely represented by species in nearly every part of the world; some are cosmopolitan in their distribution. In order ts facilitate the recognition of the species it is necessary to sub-divide the mass by some characters sufficiently constant. After a careful study I have adopted a modification of the method proposed by Erichson, based on the dorsal punctures of the thorax. The change proposed consists in the separation of those species in which the anterior tarsi of the male are slender and not dilated from those with the same tarsi more or less dilated in both sexes. It may be said, in objection to this method, that the female tarsi are more slender than in the male, and consequently with the former sex only at hand there will be difficulty in placing them in the proper series. In our large series I have never observed any such difficulty. When the front tarsi of the male are undilated they are slender, filiform and rather spinous beneath, the females not different. In the other series, however, the tarsi, no matter how narrow the dilatation, are never filiform, and the under side is finely silken pubescent in both sexes.

The dorsal punctures come next in value as a means of further subdivision,—first, those with a regular dorsal series of three, four, or five punctures, and second, those with the punctures very irregularly placed, not in series, and sometimes quite dense.

In the numeration of the punctures the method adopted by Fauvel has been followed, that is, only those punctures are counted which are strictly discal in their position, thus *aeneus* is a tripunctate species, but by the Erichson notation is said to have four punctures. The latter

author counted in the puncture at the apical margin, which I think Fauvel has clearly shown to belong to the marginal series, and has no part in the discal series proper. This difference of notation must always be borne in mind, as nearly all the species described in our fauna since Erichson's work follow his notation.

The sexual characters of the male, independently of the dilated tarsi, are in nearly all the species very well marked, the terminal ventral segment being always more or less emarginate. The different modifications of the emargination afford excellent and very certain means for separating species which superficially resemble each other very closely.

The following is the scheme of sub-division adopted in the present essay:

Thorax with a distinct and regular series of dorsal punctures.
Anterior tarsi more or less dilated.
Dorsal series of three punctures.....SERIES **A.**
Dorsal series of four punctures.....SERIES **B.**
Dorsal series of five punctures.....SERIES **C.**
Anterior tarsi filiform in both sexes.
Dorsal series regular, but varying in number SERIES **D.**
Thorax irregularly punctured, no distinct dorsal series. Anterior tarsi dilated. SERIES **E.**

It is well known to those who have studied the genus that there is often an individual variation in the number of the dorsal punctures, usually by an increase, that is, a tripunctate species may become quadripunctate, but I have observed that the adventitious puncture is usually out of line, and in my experience has never occurred on both sides at the same time, so that a species 5-punctate on one side and 4-punctate on the other wil be found to be really a 4-punctate species.

The method of sub-division adopted by Fauvel (Faune Gallo-Rhénane) based on the form of the head, is not applicable to our species, and is probably as illusory for those of Europe.

A

The essential characters of this series are—anterior tarsi dilated, dorsal series of thoracic punctures three.

The anterior tarsi are usuall more widely dilated in the male than in the female, but species have been observed in which the differences in this respect are very slight. The dilatation is usually moderate, rarely broad, and never patellate as in some of the next series. The males have in all the species a well-marked emargination of the last ventral segment, varying somewhat in degree.

The special characters of the species have been reproduced in the following synoptic table, and seem sufficiently plain to be passed without comment. In the specific descriptions there will be no mention of the usual three dorsal punctures of the thorax. The table is presented as an aid for determination, but it must not be supposed that isolated specimens can be at all times determined from a table, or even from the most labored descriptions.

Species of larger size; thorax as wide as long, not narrowed in front.....2.
Species of smaller size; thorax narrowed in front; elevated line at base of first three dorsal segments straight.....6.
2.—Basal line of dorsal segments in form ⌣—⌣—⌣.....3.
Basal line straight.....4.
3.—Head large in both sexes, abdomen above coarsely punctured, last ventral of ♂ triangularly notched.**aeneus.**
Head small, rounded, abdomen above much smoother along the middle, last ventral of ♂ with oval notch.....**atratus.**
4.—Black, or piceous species.....5.
Bicolored species, black, thorax and base of abdomen red.....**laetulus.**
5.—Elytra very black, opaque, surface alutaceous and not deeply punctate.
alutaceus.
Elytra shining, distinctly punctate.
Elytra closely punctured, surface bright aeneous, thorax with a peculiar golden iridescence**sericinus.**
Elytra rather sparsely punctate, without aeneus lustre.
Head large, and transverse in both sexes.
Elytra distinctly shorter than the thorax, thoracic punctures small and indistinct, those of the abdomen small and not numerous.
perversus.
Elytra not shorter than the thorax, thoracic punctures large and deep, those of the abdomen larger and more numerous.....**bucephalus.**
Head oval, not transverse.
Species large, more robust, surface very black and shining, legs black, abdomen very sparsely punctured.....**nitescens.**
Species large, moderately robust, elytra moderately densely punctured, usually bronzed, abdomen moderately closely coarsely punctate.
furvus.
Species smaller and slender, elytra bronzed, legs piceous.
umbratilis.
6.—Elytra sub-muricately punctured.....7.
Elytra with simple punctures.....8.
7.—Elytra bright blue, legs pale yellow.....**gentilis.**
Elytra slightly bronzed, legs dark.
Thorax feebly narrowed in front, dorsum of abdomen moderately closely punctate.....**irinus.**
Thorax very decidedly narrowed in front, dorsum of abdomen very distantly punctured.....**asper.**

8.—Thorax longer than wide.

Head oval, not conspicuously large.

Elytra piceous with aeneous surface; basal joint of antennæ piceous above, pale beneath.....**politus.**

Elytra reddish, abdomen coarsely very sparsely punctate...**semiruber.**

Elytra piceous to testaceous, abdomen moderately closely punctate; species very small.....**hepaticus.**

Head large in both sexes, elytra brown with paler side margin and apex, abdomen moderately closely punctate**cautus.**

Thorax as wide, or wider than long; thorax and elytra reddish.....**basalis.**

Of the species in the above table *aeneus* is nearly cosmopolitan, *atratus*, *politus* and *umbratilis* occur also in Europe; the others are peculiar to our fauna as far as we know. The species are arranged in the following pages according to their superficial resemblances:

P. aeneus Rossi.—Black, elytra often aeneous, sparsely pubescent; antennæ piceous, not longer than the head and thorax, joints 5–10 broader than long; head often slightly aeneous, broadly quadrate, a few fine punctures at the hind angles; thorax usually broader than long, very little narrowed in front; sides posteriorly distinctly sinuate, dorsal punctures deep; scutellum punctured similarly to the elytra; elytra a little wider than the thorax, conjointly nearly square, black; surface usually aeneous, sparsely punctured, and with brownish pubescence; abdomen above shining, moderately closely rather coarsely punctate, sparsely pubescent, beneath rather less punctured than above; legs black. Length .40—.50 inch; 10—12.5 mm.

Male.—Anterior tarsi moderately dilated, last ventral segment with a small triangular emargination surrounded by a slight gutter.

Female.—Anterior tarsi very slightly dilated, last ventral entire.

This species belongs to a group of larger forms in the present series, the members of which are by no means easy to separate. The form of the basilar stria of the third and fourth dorsal segments seems to be very constant. I have, however, seen one specimen in which the peculiar form is visible on the fourth segment only, and as I have seen but one specimen (*viridicollis* Fv. mss.), and that a female, I feel unwilling to consider it more than a variation. The only other species with similar structure is *atratus*, which is readily separable from *aeneus* by the characters of the table.

P. furvus Nord.—Black, elytra often aeneous, and sometimes paler at the sides, sparsely pubescent; antennæ piceous, nearly as long as the head and thorax, the outer joints nearly as wide as long; head moderately large in both sexes, subquadrate, a few coarse punctures behind the eyes; thorax as broad as long, not narrower in front; sides distinctly sinuate posteriorly, dorsal punctures large and deep; elytra a little wider than the thorax, a little longer than wide conjointly; surface moderately densely punctate, usually bronzed, shining, sparsely pubescent; abdomen shining, coarsely but not closely punctate, sparsely pubescent, beneath coarsely punctate, the apices of the segment smoother; legs black. Length .40—.50 inch; 10—12.5 mm.

Male.—Anterior tarsi rather widely dilated, last ventral segment triangularly emarginate, with a slight gutter surrounding the emargination.

Female.—Anterior tarsi slightly dilated, last ventral entire.

Two varieties of this species occur, which do not seem limited to any locality:

Furvus Erich.—In this form the sides of the elytra are pale. Occurs from Newfoundland to Vancouver, thence south to Arizona and Mexico.

Californicus Mann.—Elytra black or piceous. This variety does not extend its habitat so far east as the preceding, coming east as far as Lake Superior only. It is the common form in California.

This species and *aeneus* resemble aach other very closely, and are best distinguished by the form of the basal line of the dorsal abdominal segments. In the present species the lines are quite straight without the angular bend at the middle.

Occurs from Newfoundland to Vancouver, and thence southward to Mexico. I have never seen specimens from the eastern United States.

P. sericinus n. sp.—Form rather slender, piceous; elytra very distinctly aeneous; antennæ piceous, as long as the head and thorax, the outer joints nearly as wide as long; head quadrate oval, a very few punctures behind the eyes, somewhat larger in the male; thorax broadly oval, very slightly narrower in front dorsal punctures deep; surface shining, slightly bronzed and with a peculiar lustre along the basal margin and hind angles; elytra very little wider than the thorax, a little longer than wide conjointly, moderately shining, usually very distinctly aeneous, densely punctate sparsely pubescent; abdomen distinctly iridescent, punctures moderately dense along the basal margins of the segments, coarser and sparser at apex, beneath as above; legs piceous. Length .44 inch; 11 mm.

Male.—Anterior tarsi narrowly dilated, last ventral segment with a triangular emargination bordered by a narrow depressed margin.

Female.—Anterior tarsi very narrowly dilated, last ventral entire.

This species might readily be mistaken for a slender form of *aeneus*. It may, however, be known from that species by the more narrowly dilated tarsi of the male, and by the transverse line of the dorsal segments being straight as in *furvus*.

The peculiar lustre at the base of the thorax when viewed in certain lights, is the result of the sculpture of the surface. Under high power the surface will be found obliquely grooved by very fine lines in *aeneus*, and *furvus* the lines are very much finer, and are transverse in place of oblique in the present species.

This species is not very common, although I have seen specimens from Canada, Penna. and Texas.

P. nitescens n. sp.—Form moderately robust, very black and shining; antennæ as long as the head and thorax, black, joints 8–10 as wide as long; head very black and shining, quadrate, not large, a few punctures behind the eyes: thorax

broader than long, scarcely narrower in front; sides distinctly sinuate posteriorly; surface very smooth and shining, dorsal punctures deep; elytra wider than the thorax, longer than wide conjointly, black, very shining, punctures relatively fine and sparsely placed, pubescence sparse and black; abdomen black, shining, very sparsely punctate and pubescent, basilar line of segments straight, beneath shining, sparsely punctate; legs black. Length .40 inch; 10 mm.

Male.—Anterior tarsi moderately dilated, last ventral with a triangular emargination surrounded by a gutter.

Female.—Anterior tarsi rather slender, last ventral entire.

The only species with which this might be confounded is *furvus*, from which it differs by its very black surface, much less densely punctured elytra and abdomen, and the more narrowly dilated tarsi of the male.

Occurs in Vancouver, Wash. Territory, and also in the south of California; not common.

P. alutaceus n. sp.—Very black, elytra sub-opaque; surface sparsely clothed with black pubescence; antennæ black, a little longer than the head and thorax, the outer joints a little longer than wide; head black with slight aeneous lustre, hind angles numerously punctured; thorax slightly aeneous, a little wider than long, not narrowed in front; sides distinctly sinuate posteriorly, disc convex, dorsal punctures deeply impressed; elytra a little wider than the thorax, conjointly nearly square; surface densely punctate-scabrous, and not shining; abdomen rather closely coarsely punctate on the basal segments, less closely on the apical, beneath equally coarsely but less closely punctate than above; legs black. Length .36—.48 inch; 9—12 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment broadly triangularly emarginate, the emargination surrounded by a gutter.

Female.—Anterior tarsi less dilated than in the male; last ventral segment entire.

This species is closely related to *aeneus*, but its totally black surface, opaque elytra and longer antennæ, mark it as quite a distinct species.

Occurs in the southern regions of California.

P. perversus n. sp.—Form elongate, parallel, piceous moderately shining; legs paler; antennæ barely as long as the head and thorax, brownish, joints 7–10 as wide as long; head rather large, broadly oval, hind angles not punctulate; mandibles long and very slender; thorax not wider than the head, as wide as long, equally broad at apex and base; sides slightly sinuate posteriorly, dorsal punctures deep; elytra not wider than the thorax and not as long, conjointly wider than long, coarsely not densely punctured, sparsely pubescent; abdomen above shining, punctuation sparse and finer than that of the elytra, beneath more numerously punctured than above; legs piceo-testaceous, coxæ darker. Length .46 inch; 11.5 mm.

Male.—Unknown.

Female.—Anterior tarsi not dilated; last ventral entire.

This species, in its form and general appearance, is totally unlike any of the species of the present series except *bucephalus*. It recalls rather some of the species of series D, notably *brevipennis*, than which it is

very much larger. I place it in the present series because the tarsi are slightly depressed and lack the filiform character of the species of series D. The long and slender mandibles, without trace of the basal tooth, mark it as a peculiar species in whatever group it is placed.

Two specimens, Vancouver.

P. bucephalus n. sp.—Form rather slender and elongate, black, shining, without aeneous lustre; antennæ shorter than the head and thorax, black, joints 5-10 as wide as long; head large and quadrate in both sexes, broader in the male, nearly as large in area as the thorax, very black and shining, a few large punctures only behind the eye; thorax not wider than the head, sub-quadrate; sides sinuate posteriorly; surface black and shining, the dorsal punctures not large nor deep; elytra not wider than the thorax, a little longer than wide conjointly, black shining, punctures rather fine, not closely placed, pubescence sparse, brown; abdomen very sparsely punctate, shining, pubescence sparse, beneath as above, basilar line straight; legs piceous brown. Length .36 inch; 9 mm.

Male.—Anterior tarsi narrowly dilated; last ventral segment with a simple triangular emargination.

Female.—Anterior tarsi scarcely at all dilated; last ventral entire.

Closely allied to the preceding species but smaller and more shining. The elytra and abdomen are more distinctly punctured. The mandibles are equally prominent and slender. The two differ at first sight in the shorter elytra of *perversus*.

The legs are piceous, but sometimes reddish; there is always a marked contrast in color between the legs and coxæ, the latter being always very dark.

Occurs in California and Vancouver; not common.

P. umbratilis Grav.—Black, moderately shining; elytra slightly aeneous; surface sparsely brownish pubescent; legs piceous, or piceo-testaceous; antennæ piceous, a little longer than the head and thorax, joints 5-10 very slightly longer than wide; head orbicular, or slightly quadrate, the hind angles with few small punctures; thorax a little longer than wide, slightly narrowed in front; sides slightly sinuate, disc moderately convex, dorsal punctures deeply impressed; elytra wider than the thorax, conjointly nearly square, moderately closely, not coarsely punctate; abdomen above more finely and much less densely punctured than the elytra, beneath more distinctly and more closely punctured than above. Length .28—.32 inch; 7—8 mm.

Male.—Anterior tarsi rather broadly dilated; last ventral segment triangularly emarginate, the emargination surrounded by a gutter.

Female.—Anterior tarsi very feebly dilated; last ventral entire.

Excepting the characters scheduled in the table there is nothing special to distinguish this species.

Occurs in Europe, and in our eastern Atlantic region, Mass., N. J. and Lake Superior.

P. laetulus Say.—Head, elytra and three apical segments black; thorax and three basal segments red: antennæ black, scarcely as long as the head and thorax,

joints 5–10 transverse; head orbicular, hind angles nearly smooth; thorax relatively small, narrower than the head even in the female, form nearly square; sides distinctly sinuate when viewed laterally, disc moderately convex, dorsal punctures rather deeply impressed; elytra wider than the thorax, conjointly nearly square, very shining, sparsely punctate, slightly pubescent; surface with slight bluish lustre; abdomen coarsely and sparsely punctured, less closely on the apical segments, beneath equally coarsely punctured, but the punctures are more regularly placed; femora and coxæ red, tibiæ and tarsi piceous, or black. Length .24—.36 inch; 6—9 mm.

Male.—Anterior tarsi moderately dilated; last ventral with a small, broadly triangular emargination; head large.

Female.—Anterior tarsi narrowly dilated; last ventral entire; head not wider than long.

This species, by its Pæderoid style of coloration, can readily be known from all our other species except *blandus*, which, however, has undilated front tarsi, and the legs entirely yellow.

Occurs from Canada to Georgia, and as far west as the Mississippi River.

P. gentilis n. sp.—Black, shining, elytra metallic blue, coxæ, legs, mouth parts and base of antennæ yellow; antennæ a little longer than head and thorax, piceous, three basal joints pale, joints 5–7 a little longer than wide, 8–10 as wide as long, head orbicular, the hind angles nearly smooth; thorax oval, as wide as long, very distinctly narrowed in front; sides not at all sinuate, disc moderately convex, dorsal punctures deeply impressed; scutellum black, moderately densely punctured; elytra wider than the thorax, conjointly a little wider than long, rather densely sub-muricately punctured and sparsely pubescent; abdomen above roughly punctured, the punctures sparser on the apical segments; surface shining, iridescent and sparsely hairy, beneath as coarsely punctured as above, the punctures more closely and regularly placed. Length .34 inch; 8.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment broadly triangularly emarginate without gutter.

Female.—Anterior tarsi narrowly dilated; last ventral simple.

In this species the head does not seem to differ in size in the sexes. The beautiful blue color of the elytra has nothing resembling it in our fauna except *cyanipennis*, which differs by its much larger size and simple male tarsi.

Occurs in Arizona.

P. asper n. sp.—Black, moderately shining; elytra distinctly bronzed; legs piceous; antennæ about equal in length to the head and thorax, black, basal joints piceous; joints 4–10 distinctly longer than wide; head oval, distinctly narrowed behind the eyes, hind angles smooth, mouth parts piceous; thorax oval, convex, narrowed in front, not sinuate at the sides, dorsal punctures deeply impressed; elytra not wider than the thorax, conjointly nearly square, densely sub-muricately punctured and sparsely pubescent; abdomen above shining, iridescent, very sparsely, coarsely and rather roughly punctured, beneath shining, iridescent, margins of the segments brownish, very sparsely and coarsely punctured; legs piceous, the coxæ a little darker. Length .34 inch; 8.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral triangularly incised, the emargination with a surrounding gutter.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

This and the preceding species are peculiar in the present group in the oval and very convex thorax and the roughly sculptured elytra. While closely related in these respects, they differ markedly in the form of the head and the color of the elytra and legs.

I have seen but three specimens,—two females collected in Pennsylvania without more definite statement of locality, and a male from the District of Columbia.

P. politus Fab.—Form moderately robust, black, shining; elytra with distinct aeneous lustre; antennæ as long as the head and thorax, joints all longer than wide, piceous, under side of basal joint pale testaceous; head moderate in size, quadrate oval, smooth, shining, a few large punctures behind the eyes; thorax oval, very little longer than wide, slightly narrowed in front; sides scarcely sinuate posteriorly, dorsal punctures not deeply impressed; elytra wider than the thorax, not longer than wide conjointly; surface densely not coarsely punctate, finely pubescent; abdomen black, shining, somewhat iridescent, moderately densely punctate, the punctures coarser than those of the elytra, sparsely pubescent, beneath as above: legs and coxæ black. Length .36 inch; 9 mm.

Male.—Unknown to me.

Female.—Anterior tarsi slightly dilated; last ventral entire.

This species bears some resemblance to *asper*, but the thorax is less narrowed in front, the elytra more finely and less roughly punctured, the abdomen more densely punctured. The antennal character is unique in the genus, the upper side of the first joint being piceous, or nearly black, the under side very pale.

I have never seen any native specimens, but Mr. Fauvel informs me that he has one from North Carolina and another from "Amer. Bor."

P. irinus n. sp.—Form slender, black, shining; elytra slightly bronzed; legs piceous; antennæ not longer than the head and thorax, black, three basal joints piceous, joints 4–10 broader than long, the outer ones especially transverse; head orbicular, hind angles sparsely punctate; thorax quadrate oval, not at all narrowed in front: sides not sinuate, disc convex, dorsal punctures not deeply impressed; scutellum roughly punctured; elytra very little wider than the thorax, conjointly a little wider than long; surface densely sub-muricately punctured, sparsely pubescent; abdomen black, shining, usually beautifully iridescent, coarsely and moderately densely punctured and sparsely pubescent, beneath black, the margins of the segments brown; surface shining, coarsely and moderately closely punctate. Length .34—.36 inch; 8.5—9 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment rather deeply triangularly emarginate, without gutter.

Female.—Anterior tarsi very narrowly dilated; last ventral entire.

While closely related to the preceding species, the present one is more elongate; head more quadrate, and the thorax also nearly square, not at all narrowed in front. The antennæ are also stouter and shorter.

Collected by E. A. Schwarz at Columbus, Texas.

P. atratus Grav.—Black, shining, tibiæ and tarsi piceous; antennæ black, as long as the head and thorax, joints 4–10 longer than wide; head quadrate oval, hind angles smooth; thorax oval, a little wider than the head, slightly longer than wide, distinctly narrowed in front; sides slightly sinuate, dorsal punctures moderately impressed; elytra black, with slight aeneous tinge, wider than the thorax, conjointly nearly square; surface very sparsely punctate and scarcely pubescent; abdomen above sparsely, coarsely punctate, beneath also very sparsely punctate. Length .28 inch; 7 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment rather deeply triangularly emarginate, the notch surrounded by a well marked gutter.

Female.—Anterior tarsi nearly as widely dilated as in the male; last ventral entire.

This species bears a close resemblance to *sordidus* and *cephalotes* in color, sculpture and size, and might readily be mistaken for the former, especially, except that in the present species the front tarsi are dilated in both sexes.

I have seen but two specimens,—a male without locality, and a female from Hudson's Bay, both in the cabinet of Dr. LeConte.

P. semiruber n. sp.—Form rather slender, color piceous black; elytra, coxæ and legs ferruginous; antennæ brownish, as long as the head and thorax, joints 4–6 a little longer than wide, 7–10 nearly square; head oval, nearly orbicular, hind angles sparsely punctate; thorax a little larger than the head, oval, longer than wide, distinctly narrowed in front; sides slightly sinuate, dorsal punctures rather fine; scutellum black, rather closely punctate; elytra a little wider than the thorax, conjointly nearly square, sparsely rather finely punctate, and with brownish pubescence; surface feebly shining; abdomen shining, sparsely pubescent, punctures much coarser than those of the elytra, but more distant, beneath a little more closely and finely punctate. Length .30—.34 inch; 7.5—8.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with a small triangular emargination surrounded by a distinct gutter.

Female.—Anterior tarsi slightly but distinctly dilated; last ventral entire.

The characters above given will distinguish this species from any in the present group. The following species has also reddish elytra, and will be referred to. Nearly all the species with reddish elytra have five thoracic dorsal punctures.

Occurs in California and Arizona.

P. basalis n. sp.—Form rather robust, thorax and elytra reddish brown, coxæ and legs paler; antennæ scarcely as long as the head and thorax, piceous, the basal joint yellow, joints 4–10 short, as broad as long; head orbicular, hind angles sparsely punctate; thorax oval, a little wider at base than long, wider than the head, very feebly sinuate at the sides, distinctly narrowed in front, dorsal

punctures moderately impressed, the first and second more distant than the second and third; elytra not wider than the thorax, conjointly a little wider than long, moderately closely, not coarsely punctate, pubescence brownish; abdomen more finely and densely punctured than the elytra, beneath finely and sparsely punctate. Length .24—.30 inch; 6—7.5 mm.

Male.—Unknown.

Female.—Anterior tarsi slightly dilated; last ventral entire.

The three specimens before me have the thorax more or less reddish in color, but varying somewhat, it is therefore possible that specimens may occur with that part black. From the preceding species this differs in having the elytra more densely and the abdomen more densely and finely punctured. The antennæ are also shorter and more robust.

Occurs at Alma, Colorado (altitude 10,000 feet), Swift Current, British America and in Wyoming.

P. cautus Erichs.—Form rather robust, general color brown, head black; elytra paler than the thorax, the side margin and apex testaceous; legs testaceous; antennæ scarcely as long as the head and thorax, piceous, two basal joints pale, joints 4–10 gradually decreasing in length, not longer than wide; head orbicular, variable in size even in the males, relatively large, the hind angles smooth; thorax very little wider than the head, oval, a little longer than wide, distinctly narrowed in front, the sides scarcely perceptibly sinuate, dorsal punctures moderately impressed, equidistant; elytra scarcely wider than the thorax, conjointly a little wider than long, dark brown, the sides widely the apex narrowly paler, moderately densely finely punctate, sparsely pubescent: abdomen a little more coarsely punctured than the elytra, but not quite so densely, beneath more sparsely punctured than above. Length .20—.36 inch; 5—9 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment broadly semicircularly emarginate.

Female.—Anterior tarsi more narrowly dilated; last ventral entire.

The last ventral segment is often testaceous, as described by Erichson, but this is not constant nor sexual. There are so many small brown species in our fauna that it is unnecessary at this time to make extended comparisons. Strict regard must be had to the characters defining the various sub-divisions, and to the sexual characters of the males.

Occurs in the Carolinas, Georgia and Florida.

P. hepaticus Erichs.—Form slender, general color brownish, thorax and elytra paler; legs and base of antennæ testaceous; antennæ as long as head and thorax, piceous, two basal joints testaceous, joints 4–10 gradually shorter, not longer than broad; head black, small, oval, hind angles smooth; thorax oval, distinctly narrowed in front, a little longer than wide; sides nearly straight, a very slight sinuation when viewed laterally, dorsal punctures small and equidistant; elytra wider than the thorax, not longer, than wide conjointly, finely but not densely punctured, sparsely brownish pubescent; abdomen much more finely and densely punctured than the elytra, sparsely pubescent, beneath as finely punctured as above but less densely. Length .18—.22 inch; 4.5—5.5 mm.

Male.—Anterior tarsi rather broadly dilated; last ventral segment deeply and acutely triangularly incised.

Female.—Anterior tarsi slightly dilated; last ventral entire.

As in all the small brown species the color varies from brownish testaceous to piceous. The head is always black. The elytra often with the sides, apex and suture paler than the disc. The ventral segments have the apical border always paler; even in the darker specimens the legs, including the coxæ, are pale yellowish testaceous.

This species, next to *thermarum*, is the smallest in our fauna with the male tarsi dilated.

Occurs everywhere in our fauna, including California, Nevada and Arizona.

B

The series here aggregated consists of species in which the anterior tarsi of the male are dilated, and the thorax with a dorsal series of four punctures.

As will be seen by the characters used in the following table, the anterior tarsi of the male vary in the degree of dilatation. In a few the tarsi are only moderately dilated, that is to say the male tarsi are not very much broader than in the female. In others the tarsi of the male are twice as wide as in the female, while in a few the anterior tarsi are patellate, forming a disc, as broad as long, composed of the first three joints.

A few species have slender antennæ; in the majority the antennæ are not quite as long as the head and thorax, with the joints 5–10 nearly square.

The sexual characters of the male at the extremity of the abdomen require special attention in the separation or species. In *grandicollis* the penultimate segment is also notched at middle, a very rare character, otherwise known to me only in *alumnus*, a species of the next division. Two species,— *Theveneti* and *quadricollis*, have the last ventral segment longitudinally impressed in addition to the usual emargination. The other characters used in the table do not need further explanation. It is to be regretted that sexual characters have to be used in the table to such an extent, but some of the species absolutely refuse to be separated in any other describable manner.

Anterior tarsi of males very broadly dilated, sometimes patellate.....2.

Anterior tarsi of males moderately dilated, sometimes very little wider than in the female.....3.

2.—Thorax oval, very obviously narrowed in front.

Elytra densely, finely punctured; punctures of thoracic series fine.

gracilicornis.

Elytra coarsely, not closely punctured; punctures of thoracic series large and deep..... **umbrinus.**

Elytra sparsely punctured, margin and apex testaceous. **flavolimbatus.**

Thorax quadrangular, very little or not narrowed in front.

Elytra clear red, very sparsely punctate..... **palliatus.**

Elytra piceous or black, at least moderately punctate.

Abdomen densely finely punctate, opaque; elytra with brownish or reddish spaces..... **pubes.**

Abdomen rather distantly and coarsely punctured, more shining; elytra totally black with aeneous lustre.

Anterior tarsi of male broadly dilated but not patellate; the last ventral emarginate but not impressed.

Penultimate ventral of male incised at middle..... **grandicollis.**

Penultimate ventral of male entire..... **puberulus.**

Anterior tarsi of male patellate; penultimate ventral very slightly emarginate at middle.

Black species; the last ventral of male emarginate, and rather deeply longitudinally impressed.

Abdomen above unequally punctured, the basal segments very sparsely the apical more densely; thorax narrower than the elytra..... **quadricollis.**

Abdomen above equally sparsely punctured; thorax as wide as the elytra..... **Theveneti.**

Piceous or brownish; last ventral of male not sulcate; legs and basal joints of antennæ pale..... **debilis.**

3. Species of moderate size, antennæ slender, the outer joints longer than wide.

Elytra moderately densely punctured; abdomen very distinctly punctured. **varians.**

Elytra sparsely punctured, slightly aeneous; abdomen very inconspicuously punctured..... **longicornis.**

Species small or minute; antennæ shorter, outer joints quadrate.

Thorax as wide as long; posterior dorsal puncture more distant. **discoideus.**

Thorax longer than wide; punctures deep and equidistant. **thermarum.**

From the remarks on distribution appended to the different species it will be observed that a very large proportion occur in the Eastern Hemisphere, while several seem to be cosmopolitan.

P. gracilicornis n. sp.—Form moderately elongate, black, shining; elytra reddish brown, darker in a broad triangle along the suture, femora and coxæ very pale, tibiæ and tarsi darker; antennæ a little longer than the head and thorax, piceous, basal joint yellow, joints 2–10 very nearly equal in length and very slender; head elongate oval, similar in the sexes, the hind angles smooth; thorax oval, wider than the head, as wide as long, narrowed in front, not sinuate on the sides, dorsal punctures fine, the posterior more distant; elytra a little wider than the thorax, conjointly wider than long, reddish brown, darker in the scutellar region and along the suture; surface feebly shining, moderately densely finely punc-

tured, sparsely clothed with brownish hair; abdomen punctured very like the elytra but less densely, beneath more shining, a little more finely but less densely punctured than above, coxæ and femora reddish yellow; tibiæ and tarsi black. Length .24 inch; 6 mm.

Male. Anterior tarsi very broadly dilated; last ventral segment deeply triangularly emarginate, the emargination surrounded by a deep wide gutter extending nearly to the base of the segment.

Female.—Anterior tarsi scarcely at all dilated; last ventral segment entire.

This species is known in the present group not only by the characters given in the table, but also by the very slender antennæ.

Occurs in Arizona.

P. umbrinus Grav.—Form moderately elongate, black, shining; legs piceous or testaceous; antennæ shorter than the thorax, black, joints 4–10 gradually shorter and a little wider than long; head orbicular or sub-quadrate, larger in the male, hind angles sparsely punctulate; thorax oval, a little longer than wide, narrowed in front; sides not sinuate, convex, dorsal moderately impressed, the posterior more distant than the others; elytra a very little wider than than the thorax, conjointly nearly square, black or piceous, very shining, moderately coarsely not densely punctured, pubescence sparse, brown; abdomen black, iridescent, punctuation sparse, about equal in coarseness to that of the elytra; legs piceous, or piceo-testaceous. Length .26—.32 inch; 6.5—8 mm.

Male.—Anterior tarsi rather broadly dilated; last ventral with a triangular emargination surrounded by a narrow gutter.

Female.—Anterior tarsi slightly dilated; last ventral entire.

The species which I hade here identified as *umbrinus*, has been known in our collections, and distributed as *boletarius*, a manuscript name imposed by the late Dr. Zimmerman. In general aspect it resembles some of the smaller forms of *aeneus*.

Occurs from New York to South Carolina.

P. flavolimbatus Erichs.—Form slender, black or piceous, side margin and apices of the elytra, legs and base of antennæ testaceous; antennæ brownish, a little shorter than the head and thorax, joints 5–10 nearly square; head black, oval, hind angles smooth; thorax oval, a little longer than wide, narrowed in front; sides slightly sinuate; surface smooth, slightly bronzed, dorsal punctures moderately impressed, the posterior a little more distant; elytra not longer and a little wider than the thorax, conjointly slightly wider than long; surface shining, slightly bronzed, punctuation moderately fine not dense; abdomen much more finely and sparsely punctured than the elytra, beneath piceous, the segments paler at their apices, the punctuation fine, a little more dense than above. Length .14—.22 inch; 3.5—5.5 mm.

Male.—Anterior tarsi very broadly dilated, almost patellate; last ventral segment broadly triangularly emarginate with a broad gutter surrounding the notch; penultimate segment slightly sinuous at the middle of the posterior margin.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

The extent of the pale marking of the elytral margin is somewhat variable, but it seems not to reach the humeri, and in extending along the apical margin becomes gradually broader internally.

Occurs in the Gulf States and Arizona, extending to South America.

P. palliatus Grav.—Form parallel, black, shining, elytra, legs (except the coxæ) and base of antennæ rufo-testaceous; antennæ piceous, a little shorter than the head and thorax, joints 5–10 nearly square; head orbicular, or nearly quadrate, hind angles distinctly punctulate; thorax quadrate, a little longer than wide, not narrowed in front; sides slightly sinuate, dorsal punctures large, deep and equidistant; elytra scarcely wider and not longer than the thorax, conjointly a little longer than wide, shining, rather distantly and coarsely punctate, pubescence sparse; abdomen coarsely but not closely punctate, beneath more coarsely and closely punctured than above. Length .26 inch; 6.5 mm.

Male.—Anterior tarsi very broadly dilated; last ventral segment broadly triangularly emarginate, with a deep triangular impression extending nearly to the base of the segment; penultemate segment flattened at middle, the posterior margin slightly sinuous.

Female.—Anterior tarsi very narrowly dilated; last ventral entire.

This species is easily known. It is the only one in the present group in our fauna with clear red elytra. The only species at all similar occur in the next group, and have the dorsal series of rather small punctures, with either more closely punctate elytra, or the thorax distinctly narrowed in front.

Occurs in Canada, the Middle States, and as far west as Colorado.

P. pubes n. sp.—Black, legs piceous, front coxæ and femora conspicuously paler; elytra sometimes reddish brown or clouded; antennæ as long as the head and thorax, piceous, two basal joints testaceous, joints 4–10 distinctly longer than wide; head orbicular, hind angles nearly smooth; thorax wider than the head, as broad as long, scarcely perceptibly narrowed in front, convex, very shining, dorsal punctures rather fine, the posterior more distant; elytra scarcely wider than the thorax, conjointly nearly square, not very coarsely but moderately densely punctured, sparsely pubescent; abdomen very densely and very finely punctured, pubescence fine and velvety, beneath punctured as above. Length .20—.22 inch; 5—5.5 mm.

Male.—Anterior tarsi moderately widely dilated; last ventral segment with a triangular emargination surrounded by a distinct gutter.

Female.—Anterior tarsi nearly as widely dilated as the male; last ventral truncate, slightly sinuate at middle.

The color of the elytra may be described as nearly black, with an oblong reddish humeral spot reaching nearly the apical margin, the suture also pale. From this the elytra may become almost entirely red, or very nearly all black. This species may be especially distinguished by its very fine and dense abdominal punctuation.

This species is closely related to *sanguinolentus* Grav., and represents that species in our fauna. It is shorter and more robust, and with the

elytra scarcely wider than the thorax, and the two basal joints of the antennæ pale, while they are totally black in *sanguinolentus*.

Occurs in Washington Territory and Nevada.

P. grandicollis n. sp.—Form elongate, parallel, black, shining; elytra slightly bronzed; antennæ piceous, nearly as long as the head and thorax, joints 5–10 as wide as long; head sub-quadrate, hind angles distinctly punctured; thorax very little wider than the head, slightly longer than wide; sides nearly straight, very feebly convergent anteriorly, slightly sinuate when viewed laterally, dorsal punctures large, deep and equidistant; elytra very little wider than the thorax, conjointly nearly square, moderately coarsely and rather densely punctured and sparsely pubescent; abdomen as coarsely punctured as the elytra but less densely, the penultimate segment more closely punctured than the others; beneath more closely and rather more densely punctured than above, sparsely pubescent. Length .24 inch; 6 mm.

Male.—Anterior tarsi moderately widely dilated; last ventral segment with a triangular emargination surrounded by a narrow gutter; penultimate segment with a small triangular notch at middle.

Female.—Anterior tarsi slightly dilated; last ventral entire.

For this species I adopt the name under which it was returned to me some years ago by Mr. Fauvel. In a collection kindly loaned me by Mr. E. A. Schwarz the same name is appended to a species formerly labeled *Theveneti* by Fauvel. As the two species have been widely distributed by me under the names as used in the present paper I prefer to retain them.

Occurs in various parts of California, and as far north as Vancouver.

P. puberulus n. sp.—Form elongate, black, shining; elytra slightly bronzed; antennæ nearly as long as the head and thorax, piceous, paler at base, the joints all longer than wide; head sub-quadrate, hind angles distinctly punctured; thorax scarcely wider than the head, longer than wide, very slightly narrowed in front; sides when viewed laterally slightly sinuate, dorsal punctures deep and equidistant; elytra a little wider than the thorax and longer than wide conjointly, very evenly and moderately coarsely punctate, pubescence sparse; abdomen as coarsely punctured as the elytra but less closely, shining, iridescent, sparsely pubescent; beneath less coarsely and more sparsely punctured than above; legs piceous or black. Length .18—.24 inch; 4.5—6 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment broadly triangularly emarginate, the emargination surrounded by a gutter; penultimate ventral vaguely emarginate at middle of posterior margin.

Female.—Anterior tarsi slightly dilated; ventral segment entire.

This species is one of a small series which closely resemble each other superficially, and while they may be distinguished quite readily by comparison, the sexual characters of the male afford the only reliable characters for separation.

Occurs in California and Arizona.

P. quadricollis n. sp.—Elongate, parallel, black, shining; antennæ piceous, as long as the head and thorax, the joints all a little longer than wide; head orbicular, sparsely punctured behind the eyes; thorax very little wider than the head, nearly square, a little longer than wide, not narrowed in front; sides very slightly arcuate and feebly sinuate when viewed laterally, dorsal punctures moderate, equidistant; elytra a little wider than the thorax, conjointly nearly square, finely not densely punctate; surface slightly bronzed, sparsely pubescent; abdomen above finely punctate, the basal segments very sparsely the apical three more densely; beneath more coarsely but sparsely punctate. Length .20—.28 inch; 5—7 mm.

Male.—Anterior tarsi very broadly dilated, patellate: last ventral segment broadly triangular emarginate with a moderately deep longitudinal impression extending the entire length of the segment; penultimate segment sinuate at middle.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

In its form and general appearance this species very closely resembles *grandicollis*, and without the male cannot be accurately distinguished. In its sexual characters it resembles *Theveneti*, but the latter has a broader thorax and more coarsely and evenly punctured abdomen.

This species superficially resembles *quisquiliarius* Gyll, of Europe, and has been so named by several authorities. On examining the European species I find the last segment of the male simply emarginate without the longitudinal impression, the posterior margin of the penultimate segment is straight in *quisquiliarius*, and sinuate in *quadricollis*.

Occurs from New York to Missouri and Michigan.

P. Theveneti n. sp.—Form moderately elongate, black, shining; elytra slightly aeneous: legs piceous or black; antennæ piceous, as long nearly as the head and thorax, joints 5–10 nearly square; head sub-quadrate, hind angles slightly punctured; thorax nearly square, not narrowed in front; sides scarcely sinuate, disc convex, dorsal punctures large, deep and equidistant: elytra not wider than the thorax, conjointly a little wider than long, coarsely not densely punctured, sparsely pubescent; abdomen sparsely punctured, the punctures rather finer than those of the elytra; beneath with finer punctures more sparsely placed. Length .20—.26 inch; 5—6.5 mm.

Male.—Anterior tarsi very broadly dilated, patellate; last ventral segment broadly and feebly emarginate and with a slight longitudinal impression extending the length of the segment; penultimate segment sinuate at middle.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

This species bears a manuscript name, under which it is here known, from the hand of Fauvel. It greatly resembles *puberulus* and *grandicollis*, and can only be distinguished with certainty by the male sexual characters.

Occurs in California and Nevada.

P. debilis Grav.—Brownish, piceous to nearly black; legs pale brown, the tibiæ and tarsi darker; antennæ piceous, two basal joints paler, a little shorter

than the head and thorax, joints 4–10 broader than long; head sub-orbicular, hind angles smooth; thorax wider than the head, not longer than wide, very slightly narrowed in front, feebly sinuate when viewed laterally, dorsal punctures large and deep, equidistant; elytra a little wider than the thorax, conjointly a little wider than long, sparsely not coarsely punctate, rarely with a slight aeneous tinge; abdomen sparsely punctate, the punctures finer than those of the elytra; beneath more coarsely punctate, the margins of the segments paler. Length .20—.25 inch; 5—6.5 mm.

Male.—Anterior tarsi very broadly dilated, patellate; last ventral segment triangularly emarginate, the emargination surrounded by a moderately wide gutter.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

The color of this species is variable. The legs are, however, always pale, and the tibiæ and tarsi usually darker. It differs from the other patellate species in the absence of the longitudinal impression of the last ventral segment. I have seen some darker varieties labeled *insipiens* Fv. in cabinets.

Occurs in Europe and Africa, and in our fauna is found everywhere in the eastern Atlantic region, extending as far west as Kansas and Nebraska.

P. varians Payk.—Black, elytra sometimes brown, legs piceous; antennæ piceous, a little shorter than the head and thorax, joints 4–10 scarcely longer than wide; head orbicular, hind angles sparsely punctured; thorax wider than the head, not longer than wide, very distinctly narrowed in front; sides not sinuate, dorsal punctures moderate, equidistant; elytra a little wider than the thorax, conjointly nearly square, densely punctured, feebly shining, sparsely pubescent; abdomen somewhat iridescent, more coarsely and less densely punctured than the elytra; beneath similarly punctured. Length .20—.26 inch; 5—6.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment triangularly emarginate, the emargination surrounded by a gutter, which extends slightly forward on the segment.

Female.—Anterior tarsi slightly dilated; last ventral entire.

The determination of this species is based on specimens returned by Fauvel to Mr. Schwarz so labeled. The form occurring with us is the variety *agilis*. I have suppressed *niger* Mels. as entirely synonymous.

This species is nearly cosmopolitan. In our fauna it occurs in the northern portions of the Atlantic region, extending westward to Washington Territory and California.

P. longicornis Steph.—Black, shining; antennæ piceous, nearly as long as the head and thorax, joints 4–10 a little longer than broad; head oval, hind angles slightly punctate; thorax oval, a little longer than wide, distinctly narrowed in front; sides scarcely sinuate, dorsal punctures moderately deep, the posterior more distant; elytra wider than the thorax, conjointly a little wider than long, moderately densely sub-muricately punctured, sparsely pubescent, sometimes slightly aeneous; abdomen rather finely and densely punctured, especially at the base of the segments; beneath finely densely punctulate, distinctly iridescent. Length .24—.30 inch; 6—7.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with a broadly triangular emargination surrounded by a gutter extending somewhat forward.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

This species varies with the legs and coxæ brown. It resembles *umbrinus*, but the latter has a larger head and more roughly sculptured elytra and abdomen.

In distribution it is cosmopolitan. From our own fauna I have seen specimens from nearly every region except Arizona.

P. discoideus Grav.—Piceous or brownish, limb of elytra paler, legs and antennæ testaceous; antennæ shorter than the head and thorax, joints 5–10 nearly square; head sub-quadrate ♂ or orbicular ♀, hind angles sparsely punctate; thorax very little longer than the head in the male, sub-quadrate, scarcely narrowed in front, dorsal punctures large and deep, rather closely placed; elytra very little wider than the thorax, nearly square, rather closely not coarsely punctate; surface slightly tinged with aeneous, sparsely pubescent; abdomen nearly as coarsely but not as closely punctate as the elytra; beneath a little more coarsely punctured than above. Length .16—.22 inch; 4—5.5 mm.

Male.—Anterior tarsi slightly dilated; last ventral segment broadly but feebly emarginate, surrounded by a slight triangular impression.

Female.—Front tarsi scarcely at all dilated; last ventral entire.

Fauvel and Erichson call the anterior tarsi strongly dilated. From species which have passed through the hands of the former in my cabinet and that of Mr. Schwarz, the anterior tarsi have been found scarcely more dilated in the male than in the females of some of the preceding species.

The coloration is variable, and from my observation the majority of the specimens have elytra uniformly brown without sign of the pale side margin and apex.

In the Eastern Hemisphere the species occurs in all Europe and the Circum-Mediterranean region. In our fauna it occurs everywhere in the Atlantic region extending to Nevada and Arizona.

P. thermarum Aubé.—Form slender, piceous or brownish, legs testaceous; antennæ as long as the head and thorax, piceous, three basal joints paler, joints 4–10 nearly square; head sub-quadrangular, hind angles smooth; thorax not wider than the head, longer than wide; sides parallel, dorsal punctures large, deep and equidistant; elytra wider than the thorax, conjointly nearly square; surface shining, very sparsely and (relatively) coarsely punctate, with very little pubescence; abdomen sparsely punctate, the punctures finer than those of the elytra; beneath more distinctly punctured than above. Length .12 inch; 3 mm.

Male.—Anterior tarsi broadly dilated; last ventral segment emarginate.

Female.—Anterior tarsi slightly dilated; last ventral entire.

This species is the smallest in our fauna.

The distribution is widely extended, and seems to be in the entire Northern Hemisphere. I know of but three specimens, all females, collected in our fauna in Missouri and District of Columbia.

In addition to the species of the preceding group *P. quisquiliarius* Gyll. is said by Fauvel (Faune Gallo-Rhénane, Staphylinides, p. 464) to occur in California. I have never seen any native specimens.

C

Anterior tarsi of male dilated; dorsal series of thoracic punctures five.

In this series the tarsi of the male are at most widely dilated, never patellate, as observed in some species of B. The anterior tarsi of the females are also dilated, but to a less extent than in the males, and rarely are almost as slender as in the next series. The last ventral segment of the male is always emarginate, sometimes feebly, the emargination often surrounded by a depressed margin or gutter, which may extend in the form of sulcus along the middle of the segment. In *brunneus* the emargination is unusually large for so small a species, and almost semicircular in outline. *P. alumnus* is remarkable in having the penultimate ventral segment of the male notched at middle, a character of very rare occurrence, and known otherwise in *P. grandicollis*, a species of the preceding series.

The principal difficulty in the determination and separation of species is found in the forms most closely allied to *lomatus*, from the fact that the latter is variable in color and sculpture in its very extended distribution.

Males with the last segment alone emarginate.....2.
Males with the last two segments emarginate; species rather small, variable in color, densely punctured.....**alumnus.**
2.—Elytra clear red, sometimes also thorax red.....3.
Elytra dark red or black; antennæ and usually the legs black.....4.
General color piceous, legs and base of antennæ paler.....5.
3.—Thorax entirely or in great part red.
Thorax nearly parallel, very little larger than the head, and distinctly narrower than the elytra.....**innocuus.**
Thorax distinctly narrowed in front, much larger than the head, and as wide as the base of the elytra.....**thoracicus.**
Thorax black.
Thorax very obviously narrowed in front; body fusiform....**fusiformis.**
Thorax scarcely narrowed in front; general form parallel.
Smaller elytra more opaque; antennæ at base and legs pale yellow. **fulvipes.**
Larger more shining; antennæ and legs piceous.....**occidentalis.**
4.—Larger species, the abdomen above very conspicuously and more coarsely punctured than the elytra; legs black; antennæ slender; thorax very obviously narrower in front.
Anterior tarsi ♂ narrowly dilated.

Form robust, thorax as wide as long.....**Schwarzi.**
Form slender, thorax longer than wide.....**hudsonicus.**
Anterior tarsi ♂ widely dilated.....**Pettiti.**
Smaller species; thorax very little narrowed infront.
Elytra more or less brown or ferruginous.
Abdomen beneath densely finely punctured; anterior coxæ piceous; antennæ slender.....**triangulum.**
Abdomen beneath not densely punctured; anterior coxæ pale; antennæ shorter, the outer joints sub-quadrate.....**ferreipennis.**
Elytra entirely black.
Antennæ slender, the joints all longer than wide.
Abdomen above and beneath densely finely punctured, anterior and middle coxæ testaceous.....**caurinus.**
Abdomen above and beneath coarsely and rather sparsely punctured; coxæ piceous.....**Crotchi.**
Antennæ stouter, the outer joints as wide as long.
Abdomen shining, sparsely and rather coarsely punctate; anterior and middle coxæ pale.....**arizonensis.**

5.—Head oval, distinctly narrowed behind the eyes.
Elytra and abdomen very densely finely punctured and opaque; antennæ short and stout.....**micans.**
Elytra neither densely nor finely punctate, more or less shining.
Antennæ slender and long, basal joint pale, the joints all longer than wide; abdomen not conspicuously coarsely punctured.....**lomatus.**
Antennæ slender, as in *lomatus*, entirely piceous; elytra more coarsely punctate; abdomen more sparsely punctate than *lomatus*.....**cunctans.**
Antennæ shorter, the outer joints not longer than wide; abdomen quite coarsely punctured.....**æqualis.**
Head quadrate in both sexes, not narrowed behind the eyes; abdomen finely punctulate.....**brunneus.**

With the exception of *alumnus* and *fulvipes* the species appear to be native; possibly one or more of those in the black series may be found to have been previously described from Northern Europe.

P. alumnus Erichs.—Form slender, parallel, color variable; antennæ slender, as long as the head and thorax, piceous, basal joints paler, joints all longer than wide: head orbicular, hind angles sparsely punctured; thorax a little wider than the head, slightly longer than wide; sides nearly parallel, dorsal punctures fine and equidistant: elytra a little wider than the thorax, conjointly a little longer than wide, very densely finely punctured, opaque, finely pubescent; abdomen densely punctured, punctures coarser than the elytra; beneath less densely punctured than above, with rather coarser punctures. Length .18—.22 inch; 4.5—5.5 mm.

Male.—Anterior tarsi widely dilated: last ventral segment with a slight emargination surrounded by a wide gutter; penultimate ventral with a triangular notch at middle.

Female.—Anterior tarsi very narrowly dilated; last ventral entire.

This species is very variable in color, and has given rise to several manuscript names. The forms are as follows:

var. *alumnus* Er.—Black, legs piceous to testaceous.
var. *rufulus* Fv.—Black, elytra red, varying to pale brown; legs testaceous.
var. *atriceps* Fv.—Black, thorax and elytra red; legs pale.

The males are very readily distinguished from any other in the group by the ventral sexual characters. The females, however, resemble *fulvipes*, but are more densely punctured and opaque.

The species was originally described from Porto Rico, but it seems widely spread in our territory. It is known to me from Florida to Arizona, and as far north as New York.

P. innocuus n. sp.—Piceous, thorax and elytra red, legs testaceous; antennæ as long as the head and thorax, rather slender, piceous, two basal joints paler, joints all longer than wide; head broadly oval, hind angles punctured; thorax very little wider than the head, longer than wide; sides nearly parallel, dorsal punctures moderately deep and equidistant; elytra wider than the thorax, conjointly nearly square; surface slightly shining, moderately densely punctured; abdomen moderately densely punctured, the punctures a little coarser than those of the elytra; beneath moderately densely punctured, a little more coarsely than above. Length .18—.20 inch; 4.5—5 mm.

Male.—Anterior tarsi moderately dilated; last ventral with a broad triangular emargination surrounded by a gutter.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

While I have seen but few specimens of this species there seems to be a tendency to variation. The base and sides of the elytra are sometimes piceous as well as a broad space at the base of the thorax. It is probable that varieties will occur totally black.

As the thorax is scarcely perceptibly narrowed in front, the only species with which this is likely to be confused are *alumnus* and *fulvipes* from both of which the male sexual characters must be referred to for separation.

Occurs in Arizona.

P. thoracicus Grav.—Piceous or black, thorax and elytra red, legs testaceous; antennæ slender, longer than the head and thorax, piceous, three basal joints paler, joints all longer than wide; head oval, hind angles sparsely punctate; thorax wider than the head, oval, very obviously narrowed in front, dorsal punctures moderate, equidistant; elytra conjointly broader than long, not longer nor wider than the thorax; surface slightly shining, moderately densely punctured, sparsely pubescent; abdomen less densely but more coarsely punctured than the elytra; beneath more shining, and rather more coarsely punctured than above. Length 32 inch; 8 mm.

Male.—Anterior tarsi moderately dilated: last ventral segment triangularly emarginate, the notch surrounded by a gutter which extends forward on the segment.

Female.—Anterior tarsi quite slender; last ventral entire.

This species although rather long, is quite slender. It is readily known by its coloration, which seems to be constant, and by the large thorax.

Occurs principally in the Gulf States, but I have seen specimens from Michigan and Kansas.

P. fusiformis Mels.—Body moderately elongate, fusiform, black, shining; elytra red, legs testaceous; antennæ slender, as long as the head and thorax, piceous, two basal joints pale, joints all longer than wide; head rather elongate oval, narrowed behind the eyes and smooth; thorax oval, wider than the head, very obviously narrowed in front, not longer than wide, convex, very shining, dorsal punctures moderately deeply impressed and equidistant; elytra scarcely wider than the thorax, conjointly nearly square, shining, moderately closely punctate, sparsely pubescent; abdomen shining, sparsely coarsely punctate; beneath a little more closely punctate than above. Length .20 inch; 5 mm.

Male.—Anterior tarsi moderately dilated; last ventral triangularly emarginate, surrounded by a triangular impression.

Female.—Anterior tarsi scarcely at all dilated; last ventral entire.

The characters given in brief in the table are the striking points of difference between this species and its close allies.

Occurs in the Middle States and Canada, westward to Colorado.

P. fulvipes Fab.—Form rather parallel, black, shining; elytra red, legs testaceous; antennæ as long as the head and thorax, piceous, three basal joints testaceous, joints 5–10 as wide as long; head oval, scarcely narrowed behind the eyes, hind angles smooth; thorax very little wider than the head, slightly longer than wide, scarcely at all narrowed in front, dorsal punctures moderately impressed, equidistant; elytra a little wider than the thorax, conjointly a little wider than long; surface moderately shining rather sparsely punctate, sparsely pubescent; abdomen sparsely punctate, the punctures rather coarser than those of the elytra; beneath more finely punctured than above. Length .26 inch; 6.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with a feeble triangular emargination surrounded by a triangular impression.

Female.—Anterior tarsi very narrowly dilated; last ventral entire.

In comparing certain specimens sent to me by Fauvel under the name *Horni*, I am unable to find differences warranting specific separation. In some of the native specimens the elytra are possibly a little more closely punctate and less shining.

Occurs in Canada, Mass., Mich. and N. Y. From Kirby's notes (Faun. Bor. Am.) it is impossible to tell whether he had this species or the preceding before him in quoting *fulvipes*, as both occur in Canada.

P. occidentalis n. sp.—Form moderately robust, black, shining; elytra clear red; legs piceous or piceo-testaceous; antennæ longer than the head and thorax, piceous, joints all longer than wide, 8–10 conspicuously shorter than those which precede; head sub-quadrate ♂ or orbicular ♀, hind angles sparsely punctured; thorax broader than the head, as broad as long, very little narrowed in front, dorsal punctures moderate, rather closely approximate, equidistant; elytra a little wider than the thorax, conjointly nearly square, disc rather flat, shining, moderately densely punctate, very sparsely pubescent; abdomen more finely and closely punctured than the elytra; beneath more coarsely punctured than above. Length .28—.30 inch; 7—7.5 mm.

Male.—Anterior tarsi broadly dilated; last ventral segment broadly triangularly emarginate with a triangular depression.

Female.—Anterior tarsi very feebly dilated; last ventral entire.

Although the legs vary in color from nearly black to testaceous, the anterior coxæ are always conspicuously rufo-testaceous.

This species, by its depressed elytra, is related to the rest.

Occurs in Colorado, Utah, Indian Territory and Wyoming.

P. Schwarzi n. sp.—Body fusiform, very black and shining; antennæ black, a little longer than the head and thorax, joints all longer than wide; head relatively small, orbicular, slightly oval, hind angles punctulate; thorax much wider than the head, oval, narrower in front, not longer than wide, dorsal punctures fine and equidistant; elytra very little wider than the thorax, conjointly a little wider than long, feebly shining, densely and finely sub-muricately punctured, pubescence very short; abdomen iridescent, more coarsely and much less densely punctured than the elytra; beneath similarly punctured. Length .40 inch: 10 mm.

Male.—Anterior tarsi narrowly dilated; last ventral segment with a small triangular emargination surrounded by a distinct gutter.

Female.—Anterior tarsi scarcely at all dilated; last ventral entire.

This species is much the largest of the present series, and is quite conspicuous by its very black surface and iridescent abdomen.

Occurs in Massachusetts and at Detroit.

P. hudsonicus n. sp.—Form slender, elongate, black, moderately shining; antennæ rather slender, a little longer than the head and thorax, joints all longer than wide; head broadly oval, hind angles sparsely punctulate; thorax wider than the head, oval, narrowed in front, a little longer than wide, dorsal punctures fine equidistant; elytra wider than the thorax, conjointly longer than wide, densely, moderately finely punctured, slightly shining, pubescence brownish, sparse; abdomen moderately closely punctate, the punctures coarser than those of the elytra; beneath similarly punctured. Length .26—.30 inch: 6.5—7.5 mm.

Male.—Anterior tarsi narrowly dilated; last ventral segment with a small triangular emargination surrounded by an elongate triangular impression.

Female.—Anterior tarsi nearly as wide as in the male; last ventral entire.

The only species resembling this are *Schwarzi* and *Pettiti*. The former is larger and more robust, the latter somewhat larger, with the thorax shorter and different male characters.

Occurs in Canada and the Hudson's Bay region.

P. Pettiti n. sp.—Moderately elongate, black, shining; antennæ a little longer than the head and thorax, joints all longer than wide; head relatively small, oval, hind angles sparsely punctate; thorax much wider than the head, oval, narrowed in front, not longer than wide, dorsal punctures fine equidistant; elytra a little wider than the thorax, conjointly nearly square, densely, rather finely punctulate, feebly shining, pubescence sparse; abdomen iridescent, coarsely moderately closely punctured; beneath more iridescent, punctures rather finer than above. Length .34—.36 inch; 8.5—9 mm.

Male.—Anterior tarsi rather broadly dilated; last ventral segment with a small triangular emargination surrounded by a distinct gutter.

Female.—Anterior tarsi slightly dilated; last ventral entire.

The difference between this species and its closer allies have already been referred to.

Occurs in Washington Territory and California.

P. triangulum n. sp.—Black, shining, elytra dark red, the sides and suture (more widely at base) black; legs piceous; antennæ as long as the head and thorax, piceous, joints all longer than wide; head sub-quadrangular, hind angles sparsely punctate; thorax wider than the head, not longer than wide, distinctly narrowed in front, moderately convex, dorsal punctures approximated, equidistant; elytra wider than the thorax, conjointly nearly square, disc depressed; surface shining, not densely punctured, sparsely pubescent; abdomen densely and finely punctured with a velvety aspect, the punctures very much finer than those of the elytra; beneath densely punctured, the punctures a little coarser than above; legs black or piceous, the anterior coxæ piceous. Length .24—.28 inch; 6—7 mm.

Male.—Anterior tarsi rather broadly dilated; last ventral of male broadly triangularly incised with a moderately long triangular impression.

Female.—Anterior tarsi very narrowly dilated: last ventral entire.

The coloration of the numerous specimens before is quite constant. The elytra are dark red, with the sides and suture piceous. The sutural piceous space is usually broader toward the base of the elytra and extends along the base to the humeri. Very rarely the elytra are entirely red, in which case it resembles the preceding species, from which the finely and densely punctured abdomen will distinguish it. In all the collections I have seen a variety of the next species is often intermixed, from a general similarity of coloration. It may, however, be known in whatever color it occurs by the depressed elytra and very finely punctured abdomen.

Occurs in Washington Territory, Nevada and California.

P. ferreipennis n. sp.—Form moderately elongate, piceous, shining; elytra reddish brown; antennæ not longer than the head and thorax, piceous, joints 6-10 as wide as long; head oval, slightly quadrate, a few coarse punctures behind the eyes; thorax wider than the head, oval, nearly as wide as long, very slightly narrowed in front; sides not sinuate, dorsal punctures rather strongly impressed; elytra wider than the thorax, a little wider than long, rather finely and moderately densely punctured, pubescence very fine and black, color usually entirely ferruginous, sometimes with the suture and entire margin piceous; abdomen above shining, iridescent, punctuation coarser but less dense than on the elytra; beneath as above; anterior and middle legs usually testaceous, anterior coxæ testaceous, posterior legs always piceous. Length .24—.28 inch; 6—7 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment broadly triangularly emarginate, with a triangular depression extending forward.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

By its color this species is readily known from any other except, possibly, *triangulum*, from which it differs by the stouter antennæ and ventral punctuation.

Occurs from Washington Territory to the southern part of California.

P. caurinus n. sp.—Black, shining, legs piceous; antennæ slender, as long as the head and thorax, joints all longer than wide; head quadrate, slightly oblong, hind angles punctured; thorax wider than the head, as wide as long, very distinctly narrowed in front, dorsal punctures rather large, equidistant; elytra a little wider than the thorax, conjointly nearly square, densely rather finely punctulate, sparsely pubescent, feebly shining; abdomen densely and very finely punctulate with velvety aspect; beneath more distinctly punctured than above; legs piceous, or piceo-testaceous, anterior and middle coxæ testaceous. Length .22 inch; 5.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral triangularly emarginate and triangularly impressed.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

This species makes a gradual approach to the brownish species. From these it may be known by the antennæ being at all times piceous, while they have the antennæ testaceous at base.

Occurs from Vancouver to northern California.

P. Crotchi n. sp.—Form rather elongate, black, moderately shining; antennæ piceous, a little longer than the head and thorax, the joints all longer than wide; head orbicular, slightly oval, hind angles sparsely punctured; thorax wider than the head, sub-quadrate, very little narrowed in front, not longer than wide, dorsal punctures rather fine, equidistant; elytra a little wider than the thorax, conjointly a little wider than long, moderately densely and finely punctured, sparsely pubescent, feebly shining; abdomen moderately closely punctured at the sides of the first three segments, sparsely at the middle of these; on the last three segments the punctures coarser than those of the elytra; beneath a little more coarsely punctured than above, the punctures more closely placed along the base and sides of the segments; legs black or piceous, the coxæ piceous. Length .26 inch; 6.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with a broad triangular emargination surrounded by a feebly depressed triangular space.

Female.—Anterior tarsi very narrowly dilated; last ventral entire.

In the general style of its sculpture this species resembles *ferreipennis*; it is, however, much less punctured beneath. The antennæ are slender, as in *triangulum*. The character in the table will distinguish it from *caurinus*.

Occurs from Vancouver to Arizona, more common near Lake Tahoe.

P. arizonensis n. sp.—Form moderately elongate, black, shining; elytra with faint bronze tinge; antennæ piceous, not longer than the head and thorax, joints 7–10 as wide as long; head oval, longer than wide, a few coarse punctures behind the eyes; thorax wider than the head, oval, slightly longer than wide,

slightly narrowed in front; sides not sinuate, dorsal punctures moderately deeply impressed; elytra a little wider than the thorax, a little wider conjointly than long, rather finely and closely punctate, finely pubescent, slightly bronzed; abdomen shining, sparsely pubescent, rather coarsely punctate, the punctures much sparser on the apical segments; beneath more regularly punctured than above; legs piceous, the anterior coxæ usually, the middle coxæ sometimes pale. Length .24 inch; 6 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with a triangularly oval emargination and an elongate triangular impression.

Female.—Anterior tarsi rather slender; last ventral entire.

Apart from its color this species resembles *ferreipennis* more closely than any other, and very dark varieties of the latter may be very perplexing. In the present species the thorax is distinctly narrowed in front, and the abdomen more coarsely and sparsely punctate.

P. micans Grav.—Small, moderately elongate, brownish or piceous, legs testaceous; antennæ moderately stout, not longer than the head and thorax, piceous, basal joint testaceous, joints 5–10 as broad or broader than long; head rather broadly oval, hind angles not punctulate; thorax much wider than the head, as broad as long, slightly narrowed in front, dorsal punctures moderate, equidistant; elytra very little wider than the thorax, conjointly nearly square, densely punctured, sub-opaque, finely pubescent; abdomen densely and moderately finely punctured, the punctures coarser than the elytra; surface slightly iridescent, finely pubescent; beneath densely punctured, especially on the basal segments, the punctures coarser than above. Length .18—.20 inch; 4.5—5 mm.

Male.—Anterior tarsi moderately dilated; last ventral broadly triangularly emarginate, the notch surrounded by a distinct depression.

Female.—Anterior tarsi very slightly dilated; last ventral entire.

This species, the smallest of the present series, is a little variable in color. It is never black. The elytra by their opacity often seem paler in color than the rest of the surface, and while the legs are usually testaceous they are rarely piceous.

Occurs in Europe, and the eastern United States from Massachusetts to Michigan.

P. lomatus Erichs.—Form moderately elongate, black, elytra slightly bronzed; antennæ at base and legs testaceous; antennæ long, slender, nearly as long as half the body, piceous, the basal joint paler; head oval, distinctly narrowed behind the eyes, hind angles scarcely punctulate; thorax oval, wider than the head, distinctly longer than wide and narrowed in front, dorsal punctures moderate, equidistant; elytra not wider at base than the thorax, gradually wider behind, conjointly longer than wide, densely punctured, pubescence sparse, brown; abdomen with punctuation not coarser than the elytra but less dense; beneath the margins of the segments paler, not densely punctured, very sparsely pubescent. Length .26—.32 inch; 6.5—8 mm.

Male.—Anterior tarsi rather broadly dilated; last ventral with a triangular emargination and impression.

Female.—Anterior tarsi slender; last ventral entire.

In the fully developed very dark specimens, the elytra are scarcely bronzed, the legs are always piceo-testaceous with the anterior coxæ pale. When the elytra are pale the bronze surface is more evident, and the sides and apex are often narrowly bordered with paler color, the legs here are entirely pale.

I have before me a small number of specimens in which the abdomen is somewhat more finely and densely punctured. After a careful study of the sexual peculiarities I conclude that these are merely variations from the typical form of *lomatus*. They constitute from our determination *georgianus* Sachse. I have been informed that Fauvel considers the latter species identical with *sobrinus* Er. a conclusion, it seems to me, entirely unwarranted by the description. *P. viperinus* Fv. mss. seems to me merely a small form of *lomatus*.

Occurs everywhere in our fauna except in the Pacific coast region.

P. cunctans n. sp.—Form rather slender, piceous, elytra very distinctly bronzed; legs testaceous; antennæ piceous, slender, a little longer than the head and thorax, joints all longer than wide; head oval, slightly quadrate, a few coarse punctures behind the eyes; thorax wider than the head, oval, longer than wide, scarcely narrowed in front, dorsal punctures moderate; elytra wider than the thorax, conjointly nearly square: surface very distinctly bronzed, and roughly not closely punctured, pubescence sparse; abdomen shining, very sparsely pubescent, punctures rather coarse and not closely placed; beneath shining, coarsely and sparsely punctate, pubescence very sparse. Length .28 inch; 7 mm.

Male.—Anterior tarsi slightly dilated; last ventral segment with a small triangular emargination and a triangular impression extending forward.

Female.—Anterior tarsi very feebly dilated; last ventral entire.

This species might readily be mistaken for *lomatus*, but the antennæ are entirely piceous, and the elytral and abdominal sculpture coarser. The last ventral of the male has a much smaller emargination, and the anterior tarsi less dilated.

Occurs in District of Columbia (Ulke).

P. æqualis n. sp.—Piceous, elytra brownish; legs testaceous; antennæ a little longer than the head and thorax, piceous, two basal joints testaceous; head oval, narrowed behind the eyes; sides nearly straight, hind angles not punctulate; thorax oval, a little wider than the head, a little longer than wide, narrowed in front, dorsal punctures rather deep and closely placed; elytra a little wider than the thorax, conjointly nearly square, punctures moderately coarse but not densely placed, color brownish; surface shining, sparsely pubescent; abdomen piceous, the margins of the segments paler, punctures coarse but not dense; beneath similarly punctured. Length .20 inch; 5 mm.

Mdle.—Anterior tarsi moderately dilated; last ventral with a feeble broad emargination and a narrow longitudinal impression.

Female.—Anterior tarsi feebly dilated; last ventral entire.

This species resembles some of the smaller forms of *lomatus*, but it has more sparsely punctured elytra, the abdomen more coarsely punctured, antennæ shorter and stouter, and thorax more narrowed in front.

Occurs in Canada, Lake Superior region.

P. brunneus Grav.—Piceous or brownish, rather short; antennæ scarcely as long as the head and thorax, brownish, basal joint pale, joints 4–10 not longer than wide, the outer ones quite transverse; head sub-quadrate in both sexes, not narrowed behind the eyes, the hind angles not punctulate; thorax very little wider than the head, longer than wide, slightly narrowed in front, the sides slightly sinuate, dorsal punctures large and equidistant; elytra very little wider than the thorax, conjointly a little wider than long, moderately densely punctate, shining, sparsely pubescent; abdomen very finely and moderately densely punctulate; beneath more coarsely punctured than above, the punctures coarser, margins of segments above and beneath paler; legs testaceous. Length .20 inch; 5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with a large oval emargination.

Female.—Anterior tarsi slightly dilated: last ventral entire.

This species is readily known among the brownish forms by the relatively larger and broader head. The punctuation of the abdomen is also much finer, and resembles that of *caurinus*. The last ventral of the male has a relatively larger emargination than in any species of the series.

Occurs from Canada to Texas, and westward to Nebraska.

D

Anterior tarsi of both sexes filiform, not at all dilated. Dorsal punctures of variable number.

These few words define the series here aggregated. The slender tarsi are perfectly characteristic of and peculiar to this series. It is true that in some species of the preceding groups the tarsi of the females are in some few cases very narrow, but there is withal some dilatation and a decided difference of vestiture. The under side of the front tarsi of the species of the present series is rather spinous, the hairs are short and stiff while in the preceding groups the vestiture is decidedly hairy and silken.

The dorsal punctures of the thorax in their varying number epitomize the three preceding groups, and add another series, which approaches the next group.

The sexual characters are remarkable in two ways. In by far the larger number of species the male characters are much more feebly indicated than in the preceding series; this is remarkable, as we would be inclined to expect that inasmuch as the tarsal sexual characters are ab-

sent the abdominal characters should be increased. On the other hand several species do present unique and very striking characters in the male, these are *quediinus*, *parvus*, *clunalis* and *bidentatus*.

The series is one of difficult study, especially among the smaller species of the five-punctate group. It is possible to separate the males after a little close study, while the females can only be placed after a careful comparison of the minuter details, which cannot be put intelligibly in words

Dorsal punctures three.

Thorax transversely oval, narrowed in front; elytra bright green or blue. **cyanipennis.**

Thorax oval, as long or longer than wide, not or very little narrowed in front.

Species bicolored.

Blue-black, thorax and base of abdomen reddish yellow. **blandus.**

Piceous, elytra red, nearly smooth **quediinus.**

Species entirely black, elytra often faintly bronzed.

Abdomen distinctly punctate.

Last ventral of male with oval emargination **sordidus.**

Last ventral of male with triangular emargination **cephalotes.**

Abdomen scarcely punctate; form more slender **filicornis.**

Species piceo-testaceous, head black.

Abdomen beneath sparsely punctured **inquietus.**

Abdomen beneath densely punctured at base **versutus.**

Dorsal punctures four.

Thorax nearly square **ventralis.**

Thorax longer than wide, parallel.

Elytra as long or longer than the thorax.

Elytra normally punctured, color piceous or brown **distans.**

Elytra nearly smooth at sides and base, color black **fallaciosus.**

Elytra shorter than the thorax **brevipennis.**

Dorsal punctures five.

Thorax short, nearly as wide as long.

Species larger, black; elytra regularly punctured **Siegwaldi.**

Species small, brown; elytra very sparsely punctured **crassulus.**

Thorax oblong, notably longer than wide.

Last ventral of male broadly concave and smooth **clunalis.**

Last ventral of male emarginate, and with a channel extending the entire length of the segment **parvus.**

Last ventral of male emarginate, without channel.

Last ventral of male acutely triangularly emarginate, each side sinuate, the apex thus bidentate **bidentatus.**

Last ventral of male with a large and broad triangular emargination fimbriate on the inner edge with rather long stiff hairs **virilis.**

Last ventral of male triangularly emarginate, the entire apex with a semi-membranous border **punctatellus.**

Last ventral of male with a broad semi-circular emargination with semi-membranous border **microphthalmus.**

Last ventral extremely feebly emarginate, and with a long triangular smooth space **nigritulus.**

Last ventral of male apparently not emarginate (the emargination is small, *triangular and* closed by a translucent pseudomembrane). **decipiens.**

Dorsal punctures six, arranged in a sigmoid series.

Antennæ as long as the head and thorax, the joints all as long or longer than wide. Last ventral of male with a rather large triangular emargination. **albionicus.**

Last ventral of male extremely feebly emarginate..... **instabilis.**

Antennæ shorter than the head and thorax, the outer joints quite transverse. **picicornis.**

P. cyanipennis Fab.—Large, form moderately elongate, black, shining; elytra bright blue; antennæ black, not longer than the head and thorax, joints 7–10 as broad as long; head large, quadrate, broader than long, larger in the male, hind angles sparsely punctate; thorax oval, broader than long, not wider than the head ♂, slightly narrower in front, dorsal punctures three, large; elytra very little wider than the thorax, conjointly broader than long, coarsely, moderately closely punctate, sparsely black pubescent; abdomen iridescent, more coarsely but less closely punctured than the elytra; beneath coarsely and moderately closely punctured on the basal segments. Length .48—.60 inch; 12—15 mm.

Male.—Tarsi all filiform; last ventral broadly triangularly emarginate.

Female.—Tarsi filiform; last ventral entire.

This species is one of the largest in our fauna, and is conspicuous by its bright blue elytra.

Occurs in Europe and the entire eastern United States. I have not seen it from west of Kentucky.

P. blandus Grav.—Black, basal half of abdomen and legs reddish testaceous antennæ piceous, not longer than the head and thorax, joints 5–10 as wide as long; head sub-quadrate, not narrowed behind the eyes, hind angles not punctate; thorax scarcely larger than the head, longer than wide, not narrowed in front; sides distinctly sinuate, dorsal punctures three, equidistant; elytra wider than the thorax, conjointly as long as wide; surface very shining, sparsely punctate and sparsely hairy; abdomen very sparsely punctate, the punctures finer than on the elytra; beneath very sparsely punctate and shining, punctures coarser than above; legs and coxæ rufo-testaceous. Length .20—.22 inch; 5—5.5 mm.

Male.—Tarsi filiform; last ventral truncate, with a triangular impression.

Female.—Tarsi filiform; last ventral entire.

While the thorax is nominally tripunctate, I have seen a specimen symmetrically quadripunctate on each side, the additional puncture being between the first and second of the normal series The last segment of the male abdomen appears to be triangularly emarginate with the notch closed by a transparent membrane.

This species resembles *lætulus* of series A, and is known by the male characters and entirely pale legs.

Occurs from Canada to Virginia and Illinois.

P. quediinus n. sp.—Black, elytra red, legs piceous; antennæ as long as the head and thorax, three basal joints piceous, outer joints much paler, joints 5–10 broader than long; head moderately large, sub-quadrate, slightly narrowed behind the eyes, hind angles not punctulate; thorax sub-quadrate, very little wider than the head, not longer than wide, very slightly arcuately narrower to the front, dorsal punctures three, rather small; elytra very little wider than the thorax, conjointly nearly square, shining, almost smooth, the punctures few and distantly placed, scarcely pubescent; abdomen very sparsely punctate; beneath much more coarsely and abundantly punctate. Length .24 inch; 6 mm.

Male.—Tarsi filiform; last ventral feebly but broadly emarginate, penultimate ventral with a small brush of stiff hairs at middle.

Female.—Tarsi filiform; last ventral entire.

This species has many peculiarities which make it very easily known. The elytra are smooth and with probably finer punctures than in any species known to me. The brush of hair on the penultimate ventral of the male is entirely unique in our fauna.

I have seen but two specimens from Detroit and Kansas.

P. sordidus Grav.—Black, elytra slightly aeneous; antennæ piceous, shorter than the head and thorax, joints 5–10 not longer than wide, the outer ones quite transverse; head quadrate, not narrowed behind the eyes, hind angles not punctulate; thorax not wider than the head, a little wider than long, not narrowed in front; sides slightly sinuate, dorsal punctures three, moderately deep and equidistant; elytra a little wider than the thorax, conjointly nearly square, rather coarsely but not densely punctured, the punctures somewhat muricate; surface shining, very sparsely pubescent; abdomen more finely and much more sparsely punctured than the elytra; beneath sparsely punctate. Length .22—.30 inch; 5.5—7.5 mm.

Male.—Anterior tarsi filiform; last ventral with a feeble emargination of ovate form, surrounded by a very narrow depression.

Female.—Tarsi filiform; last ventral entire.

In the vast majority of specimens before me the sexes do not differ greatly in the form of the head. Rarely males occur with a very large head, much wider than the thorax. In these latter the sides of the elytra are so suddenly deflexed as to have quite an acute margin extending nearly two-thirds forwards. This character I do not find mentioned.

Occurs in Canada, Michigan, Colorado, Vancouver and California. It is quite common in Europe, extending to Siberia.

P. cephalotes Grav.—Black, elytra slightly bronzed; antennæ piceous, as long as the head and thorax, joints 5–10 sub-quadrate; head quadrate, hind angles not punctulate; thorax not wider than the head, very little longer than wide, not narrowed in front; sides slightly sinuate, dorsal punctures three, equidistant, fine; elytra wider than the thorax, conjointly nearly square, sparsely and not coarsely punctate, shining, very sparsely pubescent; abdomen sparsely punctate, the punctures coarser than those of the elytra; beneath more densely punctate, especially on the basal segments. Length .24—.30 inch; 6—7.5 mm.

Male.—Anterior tarsi filiform; last ventral with a distinctly triangular notch surrounded by a narrow margin.

Female.—Tarsi slender; last ventral entire.

This and *sordidus* are very closely related, and from my own observation can only be separated by the sexual character of the male abdomen, which is itself very feeble. The differences given by Fauvel and others are extremely slight, and rather illusory in view of the variability of *sordidus* in sculpture.

This species is almost cosmopolitan. I have seen but few specimens from our fauna from Massachusetts and the Middle States.

P. filicornis n. sp.—Form slender, black, elytra distinctly aeneous; antennæ as long as the head and thorax, piceous, joints 5–10 as wide as long; head subquadrate, slightly longer than wide, hind angles not punctulate; thorax very little wider than the head, longer than wide; sides nearly parallel, dorsal punctures three, equidistant, moderately deeply impressed; elytra wider than the thorax, distinctly longer than wide conjointly, sparsely and rather finely punctured, sparsely pubescent; abdomen very sparsely and finely punctured, almost smooth on the three basal segments; beneath very sparsely punctured, the punctures more evident than above. Length .22 inch; 5.5 mm.

Of this species I have seen but one female specimen, which I have no doubt should be referred to the present series by its extremely slender tarsi. The elytral sculpture recalls that of *umbratilis*. In general form it resembles *grandicollis* and *puberulus* of series B. From either of the two preceding species it may be known by its more slender form, less punctate elytra and very much smoother abdomen. I adopt the name under which it was sent by Fauvel to Schwarz, but I can hardly perceive any relevancy in the name.

One specimen, Lake Tahoe, Nevada.

P. inquietus Erichs.—Brownish, rarely piceous, legs and base of antennæ testaceous; antennæ a little shorter than the head and thorax, piceous, two basal joints testaceous, joints 4–10 as wide as long; head orbicular, slightly narrowed behind the eyes, hind angles not punctulate; thorax oval, little wider than the head, slightly longer than wide, somewhat narrowed in front, dorsal punctures three, rather large, the posterior usually more distant; elytra a little wider than the thorax, conjointly nearly square, coarsely and deeply, but not densely punctured; surface shining, very sparsely pubescent; abdomen less coarsely and more sparsely punctured than the elytra; beneath more finely and sparsely punctured than above. Length .20 inch; 5 mm.

Male.—Anterior tarsi filiform; last ventral with an extremely feeble emargination and a slight impression.

Female.—Tarsi filiform; last ventral entire.

This species is by no means easy to separate from *hepaticus*, except when males are at hand, and in the present species the distinctive male characters are so feeble that they may readily escape observation. The head is, however, somewhat larger in the male.

Occurs from South Carolina to Texas. I have seen one specimen from Canada, which I doubtfully place with this species.

P. versutus n. sp.—Piceous, thorax and elytra brownish testaceous: legs paler; antennæ a little shorter than the head and thorax, brownish, two basal joints paler, joints 4–10 not longer than wide, the outer ones quite transverse; head black, sub-quadrate, not narrowed behind the eyes, hind angles not punctulate; thorax not wider nor longer than the head, sub-quadrate, as wide as long, not narrowed in front, dorsal punctures three, moderate in size, equidistant; elytra a little wider and longer than the thorax, longer than wide conjointly, punctures moderate in size, closely but not densely placed; surface moderately shining, sparsely pubescent; abdomen a little more finely and sparsely punctured than the elytra; beneath more closely punctured than above, the basal segments especially densely. Length .22 inch; 5.5 mm.

Male.—Anterior tarsi filiform; last ventral segment truncate, with a scarcely perceptible emargination.

Female.—Tarsi filiform; last ventral entire.

This species is very closely relied to the preceding. At first sight *inquietus* is rather depressed, *versutus* more cylindrical. The former has a sparsely punctured abdomen, the latter densely at base beneath. On actual comparison the form of the last ventral of the male differs in the two species, but in a manner almost impossible to describe.

The elytra are usually uniform in color, brownish testaceous; some specimens, however, are clouded, leaving the suture and side margin of that color.

Occurs in California.

P. ventralis Grav.—Form moderately elongate, piceous or brownish; elytra slightly bronzed; antennæ as long as the head and thorax, piceous, two basal joints pale, joints 4–10 as wide as long; head oval, slightly narrowed behind the eyes, hind angles not punctulate; thorax a little wider than the head, sub-quadrate, not narrowed in front, dorsal punctures four, large and deep, the first three closely placed, the fourth more distant; elytra a little wider than the thorax, convex, conjointly nearly square, rather coarsely and moderately closely punctate, sparsely pubescent; abdomen sparsely punctured, the punctures finer than those of the elytra; beneath more coarsely punctured than above. Length .20 inch; 5 mm.

Male.—Tarsi filiform; last ventral with an extremely feeble emargination, and a very slight triangular impression.

Female.—Tarsi filiform; last ventral entire.

This species is easily known by its rather square quadripunctate thorax. It is difficult to separate the females from some of the smaller species of series B.

Occurs in Europe, extending to Siberia and Africa. In our fauna it occurs in Michigan, Missouri and Nevada.

P. distans n. sp.—Black, piceous or brown; elytra slightly bronzed; legs testaceous; antennæ entirely piceous, as long as the head and thorax, joints 5–10 as broad as long; head oval; sides nearly straight, hind angles not punctulate;

thorax a little wider than the head, longer than wide; sides nearly parallel, dorsal punctures four, moderately impressed, the anterior always more distant; elytra wider than the thorax and slightly longer, a little longer than wide conjointly, punctures moderately coarse, not closely placed; surface shining, with very little pubescence; abdomen sparsely punctured, the punctures finer than those of the elytra; beneath more shining, similarly punctured. Length .20 inch; 5 mm.

Male.—Tarsi filiform; last ventral with a very slight emargination, and a longitudinal impression, the entire apex with a rather wide membranous border.

Female.—Tarsi filiform; last ventral entire.

This species has the form and appearance of *nigritulus*, but may be known by the dorsal punctures and large thorax.

Occurs in Vancouver and Nevada.

P. fallaciosus n. sp.—Shape somewhat fusiform, black, shining; legs and coxæ rufo-testaceous; antennæ brown, paler at base, nearly as long as the head and thorax, joints 4–10 not longer than wide, gradually broader; head quadrate oval, black, shining, a very few punctures behind the eyes; thorax oval, a little longer than wide, not narrowed in front; sides not sinuate, dorsal punctures four, moderately impressed: elytra a little longer and wider than the thorax, wider at apex, a little broader than long, moderately convex, punctuation sparse, nearly obsolete along the base and side margin, pubescence very sparse; abdomen moderately shining, punctuation sparse, finer than on the elytra, pubescence very sparse; beneath a little more coarsely punctured than above. Length .16 inch; 4 mm.

Male.—Anterior tarsi slender; last ventral segment with large triangular emargination.

Female.—Tarsi slender; last ventral entire.

A much smaller and blacker species than the others of the quadripunctate series, differing especially in the male sexual characters and the punctuation of the elytra.

Two specimens, Massachusetts and Pennsylvania.

P. brevipennis n. sp.—Form moderately elongate, gradually broader behind, piceous to brown; legs testaceous; antennæ brownish, scarcely as long as the head and thorax, joints 5–10 as wide as long; head oval; sides parallel, sparsely punctulate behind the eyes; thorax very little wider than the head, about one-fourth longer than wide; sides parallel, dorsal punctures normally four, rather deeply impressed, equidistant; elytra wider than the thorax and shorter, wider behind, wider conjointly than long, rather coarsely and moderately closely punctate, very sparsely pubescent, shining; abdomen very sparsely punctate, punctures finer than those of the elytra, sparsely pubescent; beneath a little more closely punctured than above. Length .18—.20 inch; 4.5 mm.

Male.—Tarsi filiform; last ventral with a feeble emargination surrounded by a triangular impression.

Female.—Tarsi filiform; last ventral entire.

This species is conspicuous by its short elytra, it otherwise resembles some of the brownish forms of *nigritulus*. While the normal number of dorsal punctures is four I find considerable variation in the small

number of specimens before me, one having but three dorsal punctures on one side while another has five.

All the specimens observed are from the north shore of Lake Superior.

P. Siegwaldi Mann.—Black, lege piceous; elytra slightly bronzed; antennæ piceous, nearly as long as the head and thorax, joints 7–10 as wide as long; head orbicular, a little larger in the male, hind angles not punctulate; thorax not wider than the head of the male and scarcely larger, sub-quadrate, not narrowed in front, dorsal punctures five, moderately deep, rather closely placed; elytra a little wider than the thorax, longer than wide conjointly, coarsely and rather closely punctured, sparsely pubescent; abdomen very sparsely punctured and shining, the punctures very much finer than on the elytra; beneath nearly smooth, the punctures sparse and very distant. Length .26—.30 inch; 6.5—7.5 mm.

Male.—Tarsi filiform; last ventral with a feeble oval emargination surrounded by a narrow depression.

Female.—Tarsi filiform; last ventral entire.

This species resembles in form and general appearance *sordidus* and *cephalotes*, the elytra are, however, more densely and the abdomen more sparsely punctured than either.

Occurs from Alaska southward as far as northern California.

P. crassulus n. sp.—Facies rather robust, general color brownish, shining; head black; antennæ brown, rather stout, not as long as the head and thorax, joints 4–10 not wider than long aud gradually broader; head quadrate oval, black, shining, a few coarse punctures behind the eyes; thorax oval, not narrowed in front, nearly as wide as long; surface shining, dorsal punctures five, moderately impressed; elytra a little wider than the thorax; sides slightly arcuate, a little broader conjointly at apex than long, convex, shining, punctures relatively coarse but irregular in size, sparsely placed, apparently without pubescence; abdomen darker than the elytra, the apices of the segments paler; surface shining, very sparsely pubescent, punctuation finer than the elytra and sparse; beneath as above; legs pale brown. Length .16 inch; 4 mm.

Male.—Anterior tarsi slender; last ventral segment with an oval emargination, the border of which is membranous.

Female.—Unknown.

A small species of peculiar facies from the rather robust form, very shining surface and convex elytra.

I have seen but one specimen kindly loaned me by Mr. Fauvel, collected in Nevada.

P. clunalis n. sp.—Piceous, nearly black; legs pale testaceous; antennæ nearly as long as the head and thorax, piceous, joints 6–10 as wide as long; head oval; sides parallel, hind angles not punctulate; thorax a little wider than the head and longer than wide; sides straight, slightly narrowed in front, dorsal punctures five, not large, equidistant; elytra a little wider but not longer than the thorax, conjointly less wide than long, moderately coarsely punctate, very sparsely pubescent; abdomen more finely and sparsely punctured than the elytra; beneath more coarsely punctured than above. Length .22 inch; 5.5 mm.

Male.—Anterior tarsi filiform; last ventral strongly bidentate at apex, the teeth slightly everted, the margin of the segment each side deeply sinuate, the face of the segment concave, smooth, shining; anal processes stout and bent downwards.

Female.—Anterior tarsi filiform; last ventral segment prolonged in a lobe at the middle, and on each side sinuate.

This species has somewhat the facies of *puberulus*, but is readily known in either sex by the peculiar sexual characters. I have seen a specimen from Fauvel with eight dorsal punctures, with unmistakable male characters.

Occurs in California, probably in the southern portion.

P. parvus n. sp.—Piceous or brownish, legs testaceous; antennæ nearly as long as the head and thorax, piceous, two basal joints pale, joints 6–10 as wide as long; head oval, the sides parallel, hind angles not punctulate; thorax not wider than the head, oblong, longer than wide; sides nearly parallel, dorsal punctures five, moderately deeply impressed, equidistant; elytra a little wider than the thorax and as long, conjointly a little longer than wide, moderately closely but not coarsely punctate; surface shining, very slightly bronzed, sparsely pubescent; abdomen sparsely punctate, punctures finer than on the elytra; surface slightly iridescent; beneath very sparsely punctate. Length .18 inch; 4.5 mm.

Male.—Anterior tarsi filiform; last ventral segment not emarginate at middle, but distinctly sinuate on each side, with a rather deep longitudinal sulcus extending the length of the segment.

Female.—Tarsi slender; last ventral entire.

This is one of the smallest species of the genus, and resembles *nigritulus*. The sexual characters of the male, which are unique in our fauna, afford the only reliable means for distinguishing it from the many small piceous species.

Occurs in Arizona.

P. bidentatus n. sp.—Piceous, thorax and elytra reddish brown; legs testaceous; antennæ nearly as long as the head and thorax, piceous, two basal joints pale, joints 6–10 nearly square; head oval, slightly narrowed behind the eyes, hind angles punctulate; thorax a little wider than the head, longer than wide, slightly narrowed in front, dorsal punctures five, equidistant; elytra a little wider and longer than the thorax, longer than wide conjointly, punctures coarse, sparsely placed, pubescence sparse; abdomen very sparsely and finely punctured; beneath a little more distinctly punctured than above. Length .22—.24 inch; 5.5—6 mm.

Male.—Anterior tarsi filiform; last ventral segment with two membranous tooth-like processes, separated by an acutely triangular notch, in front of which the corneous portion of the segment seems triangularly emarginate and on each side sinuate.

Female.—Unknown.

The general appearance of this species is that of *ventralis*, with, however, a longer thorax. The sexual characters are very remarkable, and afford the only reliable means of separating the present species from the series following it.

Occurs in California, Vancouver and Washington Territory.

In the collection of Mr. Schwarz there is a female specimen of a species very closely allied to the preceding but differing in its paler and somewhat more robust antennæ, and a head a little more broadly oval. It is labeled *Schwarzi* Fauvel. I do not feel at liberty with such insufficient material to give it a name, as I have used the same designation for a more imposing species.

P. virilis n. sp.—Form of *nigritulus*, somewhat more robust, rufo-piceous, shining; legs testaceous, the middle and posterior tibiæ somewhat darker; antennæ as long as the head and thorax, brown, joints 5–10 gradually shorter and broader; head oval, darker, a few coarse punctures at the sides; thorax a little wider than the head, longer than wide, not narrowed in front; sides scarcely sinuate, dorsal punctures five, not large; elytra a little wider than the thorax, slightly wider behind, not longer than wide conjointly; surface shining, coarsely and sparsely punctured, scarcely at all pubescent; abdomen darker than the elytra, punctuation finer but very sparse, pubescence very sparse; beneath as above. Length .18 inch; 4.5 mm.

Male.—Tarsi slender; last ventral with a large and broad triangular emargination fimbriate within with rather long stiff hairs.

Female.—Tarsi slender; last ventral entire.

In its general appearance this species does not differ notably from many of the forms of *microphthalmus*, *nigritulus* or *crassulus*. The sexual characters of the male mark it as very distinct. The emargination of the last ventral in that sex is greater proportionately than in any other species known to me, and occupies at least one-third of the superfices of the segment.

Two specimens, Vancouver.

P. punctatellus n. sp.—Form slender, elongate, piceous, moderately shining; legs testaceous; antennæ piceous, shorter than the head and thorax, joints 5–10 not longer than wide, the outer ones broader than long; head oval, slightly oblong, hind angles not punctulate; thorax very little wider than the head, longer than wide, slightly narrower in front, dorsal punctures five, equidistant, and rather deeply impressed; elytra wider than the thorax, slightly broader behind, longer than wide conjointly; surface rather shining, very sparsely pubescent, punctures coarse, regularly but not closely placed; abdomen above with sparser and less coarse punctures than the elytra; beneath sparsely punctate. Length .24 inch; 6 mm.

Male.—Anterior tarsi slender, filiform; last ventral segment with a broad pellucid border, and with a triangular notch in the border and in the corneous portion of the segment also.

Female.—Tarsi filiform; last ventral entire.

This species resembles some of the larger forms of *nigritulus*, but the elytra are more coarsely punctured. In the latter respect it resembles *bidentatus*. The sexual characters of the male are the only positive means for distinguishing the species.

Occurs in the Hudson's Bay region, and at Lake Tahoe.

P. microphthalmus n. sp.—Piceous, brownish, or nearly black; legs testaceous, with the tibiæ and tarsi piceous; antennæ shorter than the head and thorax, rather stout, joints 5–10 not longer than wide, the outer ones quite transverse; head oval; sides nearly parallel, sparsely punctulate behind the eyes; thorax longer than wide, scarcely wider than the head; sides nearly parallel dorsal punctures five, small, equidistant; elytra a little wider than the thorax and as long, slightly broader behind, as broad conjointly as long, not densely but moderately coarsely punctate, sparsely pubescent; abdomen more finely and sparsely punctulate than the elytra; beneath more closely punctured than above. Length .14—.18 inch; 3.5—4.5 mm.

Male.—Anterior tarsi filiform; last ventral with a broadly oval, almost semicircular emargination bordered within with a pellucid margin.

Female.—Tarsi filiform; last ventral entire.

This species is very variable, and it is consequently difficult to fix with certainty its limits. It is, of course, absolutely necessary to have the male, when the sexual characters will distinguish it from any of the preceding without difficulty.

For a long time this species has been considered by us as *nigritulus*, to which it has great resemblance; in fact the females can hardly be separated; superficially the characters are as variable here as indicated by Fauvel, for *nigritulus* (Faune Gallo-Rhénane iii, p. 470).

Occurs from Vancouver eastward to the New England States, and as far south as Virginia.

P. nigritulus Grav.—Black, shining, elytra often slightly bronzed; legs piceous or testaceous; antennæ as long as the head and thorax, piceous, joints 7–10 not longer than wide; head oval; sides parallel, hind angles sparsely punctulate; thorax not wider than the head, longer than wide; sides parallel, dorsal punctures five, equidistant; elytra a little wider than the thorax and a little longer, longer than wide conjointly, sparsely rather finely punctate, sparsely pubescent; abdomen sparsely and a little more finely punctured than the elytra; beneath more distinctly punctured than above. Length .18—.20 inch; 4.5—5 mm.

Male.—Anterior tarsi slender; last ventral segment with an extremely slight emargination and a very feeble, smooth, triangular impression.

Female.—Tarsi slender; last ventral entire.

There need be no difficulty in distinguishing the males of this specie from any except *microphthalmus;* in both the characters are very feeble, but in the present species the notch is so very slight that it might readily escape observation. On comparing the two otherwise the antennæ will here be found longer and fewer of the joints as wide as long, the elytra are more finely punctured, usually more depressed, and the entire color blacker, the legs long, very rarely pale.

Occurs from Vancouver to Arizona, Lake Superior and the New England States.

From the description given by Maeklin of *picipennis*, it is difficult to say whether he had before him some of the forms of *nigritulus* or *microphthalmus*. From the fact that he describes the legs as testaceous, I am inclined to accept the idea of Fauvel that it is *nigritulus*.

In studying a series of *nigritulus* sent me by Fauvel, and observing the extent and manner of variation, I am inclined to consider the forms distributed under the name *anthracinus* to be merely a variety. These are usually darker in color and rarely the punctuation is finer than normal, but in whatever variation of form, size or color the sexual characters remain the same.

In both *microphthalmus* and *nigritulus* there is some variation in the form of the head, which is at times quite oblong, and as often quadrate oval, this entirely independently of the sex.

There is no more difficult series in the genus than the little group with simple mode tarsi and quinquepunctate thorax.

P. decipiens n. sp.—Very closely related to *nigritulus*, and differing as follows: color reddish brown, abdomen darker; elytra more distinctly punctured; legs and coxæ rufo-testaceous. Length .20 inch; 5 mm.

Male.—Anterior tarsi slender; last ventral segment not emarginate; when viewed by transmitted light the last ventral is apparently acutely triangularly emarginate, the notch being entirely closed and the apex entire, by a translucent border.

I have seen but one specimen of this species kindly loaned me by Mr. Fauvel, from which it is impossible to say if the color in constant. It is very probable that the legs are always pale.

Occurs in California.

P. albionicus Mann.—Form moderately elongate, black, shining, very sparsely pubescent; antennæ piceous, as long as the head and thorax, joints all as long or longer than wide; head quadrate oval, shining, a few large punctures near the hind angles; thorax not wider than the head, longer than wide, not wider behind; sides feebly sinuate, dorsal punctures six, rather deeply impressed, arranged in a sigmoid series; elytra wider and longer than the thorax, a little longer than wide conjointly, black, shining, pubescence very sparse, punctuation rather coarse and deep, not closely placed; abdomen shining, iridescent, pubescence very sparse, punctuation finer than on the elytra, and rather more sparse; beneath the punctuation is rather coarser and closer; legs piceous, or piceo-testaceous. Length .24 inch; 6 mm.

Male.—Anterior tarsi slender; last ventral segment with a rather large triangularly oval emargination with a distinctly depressed border.

Female.—Unknown.

This species closely resembles *instabilis*, but the thorax is not narrowed in front, and the elytra more coarsely punctured. The male sexual characters are the most reliable for the separation of the species.

The identity of the species has been determined from description alone, and from a specimen sent me by Mr. Fauvel I find that he has made at a similar determination.

Alaska, Washington Territory, Vancouver and one from Arizona.

P. instabilis n. sp.—Black, legs piceous, elytra slightly bronzed; antennæ as long as the head and thorax, piceous, joints all as long or longer than wide; head oval, slightly narrowed behind the eyes, hind angles sparsely punctulate; thorax a little wider than the head, nearly as broad as long, slightly narrowed in front, dorsal punctures six, sometimes placed in groups of three; elytra a little wider and longer than the thorax, longer than wide conjointly, rather densely punctate, sparsely pubescent; abdomen much more finely and sparsely punctured than the elytra; beneath more distinctly punctured than above. Length .24 inch; 6 mm.

Male.—Anterior tarsi filiform; last ventral segment with a very feeble, broad emargination, and a slight trace of a triangular impression.

Female.—Tarsi filiform; last ventral entire.

This species resembles in general appearance *filicornis*, already described. The dorsal punctures of the thorax, as stated above, are sometimes placed in groups of three in the two series, usually, however, the series is continuous, and the punctures arranged in a slightly sigmoid curve.

Occurs in Colorado and Wyoming.

P. picicornis n. sp.—Piceous or brownish, legs testaceous; antennæ brownish, shorter than the head and thorax, rather robust, joints 4–10 not longer than wide, the outer ones quite transverse; head sub-quadrate, sparsely punctured behind the eyes; thorax scarcely wider than the head, longer than wide, not narrowed in front, dorsal punctures six, arranged in a slightly sigmoid curve; elytra a little wider and about as long as the thorax, conjointly nearly square, moderately closely punctate, sparsely pubescent; abdomen more finely punctured than the elytra and very sparsely; beneath sparsely punctate, feebly shining. Length .18—.22 inch; 4.5—5.5 mm.

Male.—Anterior tarsi filiform; last ventral segment with a very feeble trace of emargination, but with a well marked, rather deep, small triangular impression.

Female.—Tarsi filiform; last ventral entire.

A very inconspicuous species with nothing remarkable in its structure. As a member of the series with simple tarsi, it can be associated with *albionicus* alone from the number of dorsal punctures. It differs from that species by the very much shorter and stouter antennæ and the male ventral characters.

Occurs at Lake Tahoe, Nevada.

It is barely possible that the specimen referred to in a preceding description as *Schwarzi* Fv. may belong here. The dorsal punctures of the specimen before me are rather irregular in both series, and disagree in their number. If it is really a six-punctate species, as one side indicates, I have no hesitation in placing it here from its other characters.

E

Dorsal series of punctures extremely irregular or confused, or the thorax numerously or even densely punctured.

The species of this group are of at least moderate size. They all have the front tarsi dilated, more widely in the males. The last ventral segment of the male is always emarginate, and in one species (*Lecontei*) the penultimate also to a slight degree.

Some of the species have the head punctured beneath, a character not observed outside of the present series. Several species exhibit decided traces of the infra-orbital ridge to which I have already called attention in the Tachyporini, it is best marked in *Lecontei* and *aurulentus*, and fades out so gradually in the other species that no use can be made of it in the tables.

The species are arranged with *serpentinus* at the head, as this seems more closely related to the mass of preceding species.

Two of the species of the present series (*baltimorensis* and *apicalis*) are placed by Fauvel in the genus Hesperus. If this reference be correct, then that genus seems not to rest on any tenable basis.

All the species of this group seem peculiar to our fauna.

Thorax either parallel or narrowed behind, longer than wide.....2.
Thorax oval, distinctly narrowed in front, as wide as long.....5.
2.—Thorax with very few punctures, head oval, narrowed behind the eyes, nearly smooth**serpentinus.**
Thorax numerously or even densely punctured; head transverse or quadrate, not narrowed behind.....3.
3.—Thorax with numerous coarse punctures 4.
Thorax densely punctured, except at middle.....6.
4.—Head transverse, wider than long.
Antennæ moniliform; elytra red; abdomen brown.....**baltimorensis.**
Antennæ of normal form, tip of abdomen rufescent.....**apicalis.**
Head quadrangular.
Legs piceous: head smooth beneath**quadrulus.**
Legs pale testaceous; head punctured beneath.....**viridanus.**
5.—Thorax very densely punctured, a narrow smooth space only; legs pale testaceous.....**confertus.**
Thorax coarsely sparsely punctured; legs piceous.
Last ventral of male deeply triangularly emarginate, the penultimate slightly emarginate; anterior tarsi patellate.....**Lecontei.**
Last ventral of male feebly emarginate, penultimate entire; anterior tarsi broadly dilated.....**aurulentus.**
6.—Species very small and narrow.....**piger.**

P. serpentinus n. sp.—Slender elongate, reddish brown: elytra paler head and thorax black; legs rufo-testaceous; antennæ nearly as long as the head and thorax, piceous, the last two joints yellow, joints 7–10 as wide as long; head

broadly oval, distinctly narrowed behind; surface not more punctate than in the preceding series; beneath smooth; thorax not wider than the head, longer than wide; sides slightly arcuate, not narrowed in front, dorsal punctures very fine and small, very irregularly placed; elytra wider than the thorax, conjointly square, shining, rather coarsely and roughly punctate, the punctures sparsely placed, pubescence sparse; abdomen very coarsely sparsely punctate; beneath more sparsely but less coarsely punctured than above. Length .34 inch; 8.5 mm.

Male—Unknown.

Female.—Anterior tarsi very slightly dilated; ventrals entire.

A pretty, graceful species resembling *baltimorensis* in its coloration, but differing in many other respects. Its thorax and head have much fewer punctures than any other species of the series.

I have seen but one specimen, sent me by Mr. Charles Dury, from Kentucky.

P. baltimorensis Grav.—Rufo-castaneous; head and thorax black; antennæ stout, much shorter than the head and thorax, piceous, apical joint pale, joints 4–10 short, moniliform, the outer ones quite transverse; head transversely quadrate, somewhat narrowed behind the eyes, very sparsely coarsely punctate at the sides and posteriorly; beneath smooth; thorax scarcely as wide as the head, a little longer than wide, distinctly narrower posteriorly; sides distinctly sinuate; surface sparsely and rather irregularly, coarsely punctate, smooth at middle; elytra wider than the thorax, conjointly nearly square, rather coarsely not densely punctate, pubescence feeble, abdomen rather coarsely not densely punctate; beneath similarly punctured; legs piceous or black. Length .40—.52 inch; 10—13 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with a simple, small, oval emargination.

Female.—Anterior tarsi slightly dilated; last ventral entire.

A very striking species in its size, sculpture and color, and not resembling any other except the next.

Occurs in the Middle and Southern States.

P. apicalis Say.—Black, tips of abdomen rufo-castaneous: antennæ a little longer than the middle of the thorax, piceous, apical joint paler, joints 6–10 as wide as long; head quadrate, transverse, sparsely coarsely punctate, smooth at middle, beneath smooth: thorax a little narrower than the head, slightly longer than wide, slightly narrowed behind: sides sinuate; surface sparsely coarsely and irregularly punctate, median space smooth; elytra wider than the thorax, conjointly a little longer than wide, coarsely sparsely punctured, pubescence rather coarse: abdomen more coarsely punctured than the elytra; beneath less coarsely punctured. Length .36—.44 inch: 9—11 mm.

Male.—Anterior tarsi feebly dilated; last ventral segment with a small oval emargination.

Female.—Anterior tarsi scarcely dilated; last ventral entire.

Besides the color this species differs from the preceding in the form of the antennæ. These are longer, more slender and the joints not at all moniliform.

Occurs from Canada to Georgia.

P. quadrulus n. sp.—Black, legs piceous; elytra very slightly bronzed: antennæ slender, as long as the head and thorax, joints all longer than wide: head coarsely and deeply punctured, especially in front, a small vertical space smooth, beneath smooth; thorax not wider than the head, longer than wide, slightly narrower posteriorly; sides slightly sinuate; surface very coarsely and deeply punctured, the punctures very irregularly placed at the sides, with an attempt at serial arrangement near the median smooth space; elytra wider than the thorax, longer than wide conjointly, densely punctate, sparsely pubescent; abdomen a little more finely and sparsely punctured than the elytra; beneath more finely punctured than above. Length .24 inch; 6 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with a triangular emargination surrounded by a depressed border.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

Aside from the punctuation of the head and thorax the facies of this species is somewhat that of *puberulus* or *sordidus*. In common with the two preceding species this one has the thorax distinctly narrowed posteriorly.

Occurs in California and Arizona.

P. viridanus n. sp.—Form elongate, rather depressed, piceous; legs rufotestaceous; antennæ slender, a little longer than the head and thorax, piceous, basal joints paler, joints all much longer than wide: head quadrate, not large, coarsely and moderately closely punctured at the sides, smooth along the middle and in front, beneath punctate: thorax not wider than the head, longer than wide, very slightly narrower posteriorly; sides sinuate, punctures arranged in a crowded irregular series in the usual position, between which and the side there are very few punctures: elytra wider than the thorax, longer than wide conjointly; surface rather flat, closely but not coarsely punctate, sparsely pubescent; abdomen a little more finely but not more densely punctured than the elytra; beneath sparsely finely punctured. Length .30 inch; 7. 5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with an oval emargination surrounded by a very narrow depressed margin; penultimate segment slightly sinuous at middle.

Female.—Anterior tarsi nearly as widely dilated; ventrals entire.

I adopt the name for this species under which it has been distributed by Fauvel, although I can hardly realize its applicability.

Occurs from the Middle States westward to Missouri.

P. confertus Lec.—Piceous, surface bronzed; antennæ as long as the head and thorax, piceous, two basal joints testaceous, joints 8–10 as wide as long; head orbicular, slightly bronzed; surface punctate, a smooth space at middle, very sparsely pubescent with short hair, beneath smooth; thorax a little wider than the head, oval, as wide as long, slightly narrowed in front; surface slightly bronzed, moderately densely and evenly punctate, finely pubescent, a smooth space along the middle; elytra a little wider than the thorax, but not longer, conjointly nearly square, slightly bronzed, very densely punctate, very finely pubescent; abdomen with similar punctures very sparsely placed; beneath a little more coarsely punctate and more densely at base; legs pale testaceous, coxæ piceous. Length .38 inch; 9.5 mm.

Male.—Anterior tarsi rather broadly dilated; last ventral segment with a broadly triangular emargination surrounded by a slight depression.

Female.—Anterior tarsi moderately dilated; last ventral entire.

A very distinct species by the dense punctuation of the head and thorax. In form it resembles the larger specimens of *lomatus*.

Occurs in Canada, Iowa, Illinois and Kansas.

P. Lecontei n. sp.—Black, sometimes slightly bronzed, antennæ nearly as long as the head and thorax, black, joints 4–6 very little longer than wide, 7–10 as broad as long; head orbicular, coarsely punctured at the sides, a wide smooth space at middle, beneath with very few punctures; thorax a little wider than the head, as wide as long, distinctly narrowed in front, punctures coarse, rather sparsely and irregularly placed, each bearing a short hair, a broad median smooth space; elytra scarcely wider than the thorax, conjointly nearly square, densely punctured, sparsely pubescent; abdomen moderately densely punctured near the base, more sparsely near the tip; beneath more coarsely punctured than above. Length .36 inch; 9 mm.

Male.—Anterior tarsi very broadly dilated, patellate; last ventral with a large and deep triangular emargination surrounded by a distinct depressed margin extending in triangle forward; penultimate segment distinctly emarginate at middle and slightly depressed longitudinally.

Female.—Anterior tarsi moderately dilated; ventrals entire.

Apart from the sexual characters of the male it is very difficult to separate this species and the next. As a rule the antennæ of *Lecontei* are shorter and stouter, and the punctures of the thorax very irregularly placed, leaving larger, smooth spaces. As in the next species the elytra vary in color. They are normally entirely black, sometimes, however, reddish brown with a large oval black space extending from the base to the apex along the suture.

Occurs in California, also in Colorado.

P. aurulentus n. sp.—Black, surface slightly bronzed; legs sometimes piceous; antennæ slightly shorter than the head and thorax, piceous, joints 8–10 as wide as long; head sub-quadrate, coarsely punctate at the sides, smooth at middle and in front; beneath punctate at the sides; thorax very little wider than the head, as wide as long, distinctly narrowed in front; surface smooth at middle, at sides not densely nor coarsely punctured, the punctures very regularly placed, each bearing a short hair; elytra a little wider than the thorax, conjointly nearly square, moderately densely punctate, the punctures much finer than on the thorax; abdomen sparsely punctured, a little more finely than on the elytra; beneath more distinctly punctured than above, and rather more densely. Length .30—.38 inch; 7.5—9.5 mm.

Male.—Anterior tarsi broadly dilated; last ventral segment with a broadly triangular emargination, surrounded by a narrow depressed border.

Female.—Anterior tarsi moderately dilated; ventrals entire.

The color of the elytra varies here as in the preceding species. The differences have already been explained, but the sexual characters of the male are the only reliable means for separation.

Occurs in Washington Territory, British Columbia, Colorado and Michigan. One in Dr. LeConte's cabinet is labeled Kentucky.

In addition to the foregoing series of species the following appear in the Catalogue of Gemminger and Harold:

P. ater Zieg. vide Horn, Trans. Am. Ent. Soc. 1878, p. 160.

P. nanus Mels. Proc. Acad. ii, p. 36. The length given for this species (1 line) is less than anything known to me. The dorsal punctures are said to be "three," which, by the system adopted in the preceding pages, would be reduced to two, a character entirely unknown in our fauna. It has been placed, I think erroneously, as a synonym of *hepaticus*.

P. cinctutus Mels. loc. cit. p. 37. Evidently described from a specimen of *hepaticus* with an accidental puncture on one side.

ACTOBIUS Fauvel.

Under this name Fauvel has separated from Philonthus a number of small species which differ in having the terminal joint of the maxillary palpi conical, but very acute and longer than the penultimate joint; the posterior tarsi have the first joint not longer than the fifth. The first four joints of the posterior tarsi decrease gradually in size, while in Philonthus the first joint is quite long. The thoracic punctuation in the European species is quite dense as in many of those in our fauna. Some of our species (*patella* and the four following) have a more oval thorax with the punctuation arranged in three irregular series on each side.

A small number of our species depart from the usual sombre coloring of the group and become parti-colored, recalling minature Paederi.

From their small size the piceous species are rather troublesome to separate, the greater difficulty being in the small group with oval thorax above mentioned. If it is remembered that *pusio* and *parcus* are very small species with elytral punctuation disproportionately coarse, the expression regarding the punctuation of the other three species will be better understood.

In all the species examined the males have the anterior tarsi dilated, usually moderately, rarely at all widely (*patella*) dilated, the last segment of the abdomen emarginate, although in many cases feebly so.

The under side of the head is always more or less punctured, sometimes densely, a character of rare occurrence in Philonthus (proper), and then only in the group with irregularly punctured thorax. The infra-orbital ridge exists in nearly all of the species to a feeble extent.

The following table will assist in the identification of the species but should not (and the same is true of any synoptic table) be depended upon to the exclusion of the more extended description:

Upper surface black or piceous.....2.
Particolored species, thorax and legs always yellow 11.
2.—Elytra very finely densely punctured and opaque.....3.
Elytra more or less shining, punctures distinct.....5.
3.—Head very densely punctured, opaque.....**cinerascens.**
Head more or less shining, punctures coarse, less dense.....4.
4.—Thorax oval, very little longer than wide, elytra longer than the thorax.
nanus.
Thorax oval, distinctly narrower behind very little longer than wide, elytra not longer than the thorax.....**inutilis.**
Thorax oblong, much longer than wide, elytra depressed parallel, longer than the thorax**fraterculus.**
5.—Thorax oblong, narrower behind, the punctures numerous, without serial arrangement.....6.
Thorax more or less oval, not narrowed behind, the punctures not numerous, arranged in three irregular series on each side 8.
6.—Abdomen above and beneath opaque, punctuation fine, the surface alutaceous, thoracic punctures fine and dense.....**senilis.**
Abdomen above and beneath shining, punctures sparse; thoracic punctures coarse the median space not sharply defined.....7.
7.—Elytral punctures close and inconspicuous; legs and antennæ piceous.
Elytra with narrow pale tips; antennæ slender.....**infimus.**
Elytra uniform in color; antennæ stout**semipunctatus.**
Elytral punctures conspicuous, not close.
Antennæ piceous, femora yellow, tibiæ and tarsi piceous.....**ocreatus.**
Antennæ brown, testaceous at base, legs yellow.
Elytra distinctly longer than the thorax, apex not sharply paler.
sobrinus.
Elytra not longer than the thorax, punctuation less conspicuous and sparser, apex with well defined pale apex.....**agnatus.**
8.—Elytra finely and inconspicuously punctured.....9.
Elytra coarsely punctured (quite small species).....10.
9.—Piceous, legs paler, head sparsely punctured.
Elytra very densely punctured, sub-opaque**patella.**
Elytra shining, less densely punctured.....**loxatus.**
Black, legs piceous; head numerously punctured behind the eyes.
puncticeps.
10.—Antennæ and legs piceous.....**pusio.**
Antennæ and legs pale**parcus.**
11.—Head and thorax yellow.....**gratus.**
Head black, thorax yellow.....12.
12.—Abdomen above and beneath at least moderately densely punctured, not shining.
Elytra less closely and more coarsely punctate.
Apex of elytra with very narrow pale border.....**pæderoides.**

Elytra uniform in color and more elongate..... **jocosus.**
Elytra very densely punctate, apical pale border much wider externally. **jucundus.**
Abdomen very sparsely punctured and shining.. 13.
13.—Elytra yellow, a piceous spot on each..... **elegantulus.**
Elytra dark, bordered at tip with yellow..... 14.
14.—Head and thorax with numerous punctures.
Metathorax nearly black, elytra widely testaceous at tip..... **terminalis.**
Metathorax reddish, elytra narrowly bordered at tip..... **umbripennis.**
Head and thorax very sparsely punctured; metathorax pale... **lepidulus.**

A. cinerascens Grav.—Form moderately elongate, piceous, opaque; legs piceo-testaceous, the tibiæ and tarsi usually darker; antennæ shorter than the head and thorax, brownish, slightly thicker externally, the joints all longer than wide; head quadrate, very densely finely punctured and opaque, the vertex less punctured; beneath densely punctured, more coarsely than above; thorax not wider than the head, very little longer than wide; sides sinuate; surface rather closely coarsely punctate, leaving a narrow smooth space at middle; elytra slightly broader than the thorax, feebly convex, longer than wide conjointly, densely and finely punctured, sub-opaque, finely pubescent; abdomen densely very finely punctured and opaque, the segments paler at their apices; beneath densely, less finely punctured. Length .16—.20 inch; 4—5 mm.

Male.—Anterior tarsi slightly dilated; last ventral segment slightly emarginate.

Female.—Anterior tarsi very slightly dilated; last ventral entire.

This species is easily known by the generally dense punctuation of the upper surface. No other species in our fauna has the head so densely punctured beneath.

This species occurs from Michigan to Florida, and is also widely distributed in Europe.

A. nanus n. sp.—Form moderately elongate, black, moderately shining, legs piceo-testaceous; antennæ shorter than the head and thorax, rather slender, very slightly thicker externally, brown, the basal and apical joints paler, joints all longer than wide; head quadrate oval, moderately shining, moderately punctured at the sides and in front, a vertical smooth space, beneath closely punctate; thorax not wider than the head, slightly longer than wide; sides distinctly sinuate, disc shining, a broad median smooth space, sparsely coarsely punctured each side; elytra slightly wider than the thorax and longer, densely finely punctured, sub-opaque and sparsely pubescent; abdomen densely, very finely punctured, sub-opaque and pubescent; beneath densely punctulate, more shining than above. Length .18 inch; 4.5 mm.

Sexual characters as in *cinerascens*.

This species is generally smaller than *cinerascens*, and differs in the much less dense punctuation of the head and thorax.

Occurs in Canada, Michigan and the New England States.

A. inutilis n. sp.—Form rather slender, piceous, moderately shining, legs testaceous; antennæ shorter than the head and thorax, slightly thicker externally, brownish, joints 6–10 as wide as long; head quadrate oval, rather coarsely not densely punctured at the sides, beneath evidently punctured and alutaceous;

thorax not wider than the head, longer than wide, slightly narrowed posteriorly; sides distinctly sinuate, median smooth space rather narrow, punctures at the sides coarse and not closely placed; elytra a little wider than the thorax but not longer, as wide conjointly as long; surface densely punctured but slightly shining, sparsely pubescent; abdomen very densely and finely punctulate and sub-opaque, sparsely pubescent; beneath densely punctulate, a little more shining than above. Length 14—.16 inch; 3.5—4 mm.

Sexual characters as in *cinerascens*.

This species resembles the preceding, but has the head and thorax more coarsely and less densely punctured. The elytra are also less opaque, and are not longer than the thorax as in *nanus*.

Occurs in Michigan and the New England States.

A. fraterculus n. sp.—Slender, elongate, parallel, rather depressed, piceous, sub-opaque; elytra brownish; antennæ pale brown, shorter than the head and thorax, joints 8–10 as wide as long; head quadrangular, coarsely but sparsely punctate, a median smooth space; beneath punctate and alutaceous; thorax not wider than the head, oblong oval, longer than wide, very little narrower behind; sides scarcely sinuate; surface coarsely but not closely punctate, a moderately broad median smooth space; elytra a little wider and very distinctly longer than the thorax, longer than wide conjointly, parallel, sub-depressed, moderately densely punctured, sub-opaque, finely pubescent; abdomen finely, moderately densely punctate, sub-opaque, finely pubescent; beneath more coarsely and less densely punctured; legs piceo-testaceous, or testaceous. Length .14 inch; 3.5 mm.

Male. Anterior tarsi moderately dilated; last ventral segment with oval emargination.

Female.—Anterior tarsi slightly dilated; last ventral entire.

Occurs in northern Illinois and Michigan.

This and the two preceding species form a small group, very naturally related and not easy to separate.

A. nanus is rather larger, and has more the form of *cinerascens*, the thorax broader in comparison with its length, and more decidedly oval, the sides more arcuate. The elytra are obviously longer than the thorax.

A. inutilis is slender, but more convex than the next species. The thorax is a little longer than wide, and very plainly narrower behind. The elytra are not longer than the thorax, and are nearly as wide as long.

A. fraterculus is more slender and depressed. The thorax very distinctly longer than wide, in fact oblong oval, and scarcely visibly narrower behind. The elytra are relatively longer than in the preceding species, longer than the thorax, and nearly a third longer than wide conjointly.

A. senilis n. sp.—Slender, piceous, nearly black; antennæ shorter than the head and thorax, piceous, joints 4–10 as wide as long, the outer ones a little wider; head quadrangular, moderately densely and rather coarsely punctured, a small smooth space on the vertex; beneath sparsely coarsely punctured; thorax not

wider than the head, longer than wide, distinctly narrower behind; sides distinctly sinuate, densely and rather coarsely but very evenly punctured with a narrow smooth median space; elytra wider than the thorax, longer than wide conjointly, distinctly and closely punctured, the punctures much finer than on the thorax, sparsely finely pubescent; abdomen densely, very finely punctulate, feebly shining; beneath more opaque, the surface alutaceous, very finely but not densely punctulate. Length .16 inch: 4 mm.

Sexual characters as in *cinerascens*.

The punctures of the head and thorax although coarse are closely placed, those of the elytra are finer, rather closely placed, but the intervals are quite shining. The elytra are usually uniformly black, but sometimes narrowly testaceous at tip, and rarely with a slight aeneous lustre. The legs and coxæ are piceous.

Occurs in Colorado, Nevada and California.

A. infimus n. sp.—Form slender, elongate, rather depressed, black; elytra slightly bronzed with pale tips, legs piceous; antennæ brown, pale at base, nearly as long as the head and thorax, joints all longer than wide; head quadrate oval, coarsely and moderately closely punctured, a median smooth space; beneath very sparsely punctured; thorax not wider than the head, oblong, narrower behind; sides sinuate; surface coarsely and moderately closely punctured with a narrow median smooth space; elytra wider and longer than the thorax, much longer than wide conjointly; surface sparsely distinctly punctured, the interspace smooth, shining, sparsely pubescent; abdomen above moderately shining sparsely punctate, the punctures finer than on the elytra, sparsely pubescent; beneath sparsely punctate, the segments paler at their apices. Length .18 inch; 4.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment triangularly emarginate.

Female.—Anterior tarsi narrowly dilated; last ventral entire.

This species and several of the following differ from those previously described, by having the elytral punctures distinct and separated, so that the intervals are quite smooth and shining. The punctuation of the abdomen is also quite sparse. In general appearance this species resembles *senilis*.

Occurs in the vicinity of San Jose, California.

A. semipunctatus F. et G.—Form slender, elongate, sub-depressed, piceous; antennæ pale brown, three basal joints paler, in length barely reaching the middle of the thorax, joints 5–10 as broad or broader than long, the outer ones quite transverse; head quadrate oval, coarsely and moderately closely punctured, a median smooth space; beneath sparsely coarsely punctate; thorax not wider than the head, oblong, slightly narrower behind, the sides sinuate; surface shining, coarsely but not very densely punctured, a median smooth space; elytra wider and longer than the thorax, longer than wide conjointly; surface sparsely finely punctured, the intervals smooth, sparsely pubescent, color uniformly dark brown without aeneous lustre, the tip not sharply paler: abdomen above slightly shining, sparsely but very regularly punctate; beneath sparsely punctate; legs piceous. Length .16 inch: 4 mm.

The sexual characters are not materially different from those of the preceding species to which it is otherwise very closely related. It differs in its shorter and stouter antennæ, and by the absence of well defined pale apical margin of the elytra.

The identification of this species is due to Mr. Fauvel.

Occurs in Colorado and Nevada, having been originally described from Santiago, Chili.

A. ocreatus n. sp.—Slender, very black and shining; elytra with a slight bronze tinge and narrowly margined at tip with testaceous; coxæ, tibiæ and tarsi piceous, femora yellow; antennæ black, basal joint testaceous, shorter than the head and thorax, gradually thicker externally, joints 6–10 as wide as long; head oval, slightly narrowed behind the eyes, coarsely very sparsely punctate at the sides; beneath with very few punctures; thorax not wider than the head, longer than wide, slightly narrower posteriorly; sides sinuate; surface very coarsely sparsely punctured, a broad median smooth space; elytra a little wider and longer than the thorax, longer than wide conjointly, sparsely and rather coarsely punctured, shining, very sparsely pubescent; abdomen above shining, very sparsely pubescent; abdomen above shining, very sparsely punctate and pubescent; beneath a little more distinctly punctate. Length .16—.18 inch; 4—4.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral with feeble oval emargination and slight triangular impression.

Female.—Anterior tarsi slightly dilated; last ventral entire.

The elytra are much more sparsely punctured than in *infimus*, but less coarsely than in *sobrinus*. The legs are quite constant in the relative color of the parts, but vary somewhat in the degree of color.

Occurs in various parts of California from the middle regions southward.

A. sobrinus Erichs.—Form slender, elongate, brownish or piceous, moderately shining; legs pale testaceous; antennæ shorter than the head and thorax, somewhat thicker externally, brownish, apical and two basal joints paler, joints 7–10 as wide as long; head quadrate oval, shining, sparsely coarsely punctured; beneath more coarsely punctate; thorax not wider than the head, narrower behind; sides smooth, longer than wide, median space smooth at sides, very coarsely and rather closely punctate; elytra a little wider and longer than the thorax, longer than wide conjointly, coarsely punctate, intervals smooth shining, sparsely pubescent, color usually paler than the thorax, the apex conspicuously so; abdomen shining, very sparsely pubescent, sparsely punctate; beneath the segments paler at tip, sparsely punctate. Length .18—.22 inch; 4.5 – 5.5 mm.

Sexual characters as in *ocreatus*.

This species is easily known among the piceous species with oblong thorax by its very pale yellow legs.

Occurs everywhere in our fauna east of the Rocky Mountains. I have one specimen from Fort Yuma, California.

A. agnatus Erichs.—Form slender, elongate, piceous, shining; apical margin of elytra and legs testaceous; antennæ shorter than the head and thorax, brownish, two basal joints not conspicuously paler; head quadrate oval, slightly narrowed behind the eyes, sparsely punctate, median smooth space small; beneath coarsely sparsely punctured; thorax as in *sobrinus*; elytra not longer than the thorax, more convex than in *sobrinus*, less coarsely and more sparsely punctate, apical pale margin sharply defined: abdomen as in *sobrinus*. Length .16—.18 inch; 4—4.5 mm.

Male.—Anterior tarsi moderately dilated: last ventral segment with small triangular emargination.

Female—Anterior tarsi narrowly dilated; last ventral entire.

I owe the identification of this species to Mr. Fauvel. It resembles *sobrinus* very closely, and might readily be mistaken for it. The antennæ are not pale at tip, the elytra shorter and less conspicuously punctate.

Occurs in our fauna in Louisiana, described by Erichson from Columbia, S. A.

A. patella n. sp.—Piceous or brownish, form of *cinerascens*, legs brownish testaceous; antennæ ferruginous, shorter than the head and thorax, slender, joints longer than wide; head quadrate oval, slightly narrower behind the eyes, coarsely very sparsely punctate at the sides: beneath nearly smooth; thorax very little wider than the head, but little longer than broad; sides very slightly sinuate; surface very shining, the punctures not numerous, but disposed in three irregular series on each side; elytra a little wider than the thorax and but little longer, conjointly nearly square, densely finely punctured, opaque, finely pubescent; abdomen opaque, very finely densely punctulate, finely pubescent; beneath more evidently punctured than above, margins of the segments paler. Length .20 inch; 5 mm.

Male.—Anterior tarsi broadly dilated; last ventral segment rather deeply, but narrowly triangularly incised.

Female.—Anterior tarsi slightly dilated; last ventral entire.

This species has the same general form and appearance as *cinerascens*, but differs in the form and sculpture of the head and thorax.

Occurs in Michigan and New York.

A. loxatus n. sp.—Black, shining, form broader than *cinerascens*, legs piceous; antennæ brownish, shorter than the head and thorax, slender, joints longer than wide; head quadrate oval, shining, very few punctures at the sides; beneath sparsely coarsely punctured, more opaque; thorax not wider than the head, nearly as wide as long, slightly narrower behind; sides scarcely sinuate; surface shining, punctures coarse, arranged in three irregular series; elytra wider than the thorax and slightly longer, conjointly longer than wide; surface shining, moderately closely punctate, sparsely pubescent; abdomen slightly opaque, the punctuation indistinct, but not dense; beneath sub-opaque, the punctuation rather more distinct. Length .20—.22 inch; 5—5.5 mm.

Male.—Anterior tarsi, moderately dilated; last ventral segment with a very small triangular emargination.

This species could only be mistaken for *patella*, but it has less densely punctured elytra, which are also more shining. The male sexual characters are also different.

Occurs in the District of Columbia.

A. puncticeps n. sp.—Form moderately elongate, black, shining; legs piceous: antennæ brown, not as long as the head and thorax, joints all longer than wide: head quadrate oval, with very numerous punctures behind the eyes and on the under side: thorax very little longer than wide, not wider than the head, not narrowed behind: sides scarcely sinuate; surface shining, punctures coarse not numerous, arranged in three series on each side, the inner quite regular, and composed of seven or eight punctures; elytra scarcely wider than the thorax and very little longer, conjointly a little longer than wide; surface sub-opaque, densely punctured, sparsely pubescent; abdomen feebly shining, moderately densely punctulate; beneath as above. Length .16—.18 inch; 4—4.5 mm.

Male.—Anterior tarsi slightly dilated; last ventral with very slight emargination.

Female.—Anterior tarsi very slightly dilated; last ventral entire.

This species recalls *nanus* in appearance, but differs greatly in various details. Among the species with the broader thorax it may be known by the numerous punctures at the sides and beneath the head.

Occurs in the southern part of California.

A. parcus n. sp.—Black, shining; antennæ brown; legs testaceous; antennæ slightly shorter than the head and thorax, slightly thicker externally, brown, terminal joints paler, joints all at least as long as wide: head oval, sparsely coarsely punctured at the sides: beneath sparsely punctate, alutaceous; thorax scarcely wider than the head, very little longer than wide; sides very slightly sinuate; surface very shining with the punctures arranged in three series, the middle one composed of seven coarse punctures arranged in a regular series: elytra a little wider and longer than the thorax, conjointly but little longer than wide; surface shining, coarsely punctate, sparsely pubescent; abdomen moderately shining, punctures less coarse than on the elytra; beneath somewhat more shining and more distinctly punctured, margins of the segments paler. Length .14 inch; 3.5 mm.

Male.—Anterior tarsi moderately dilated: last ventral with a barely perceptible emargination.

Female.—Anterior tarsi scarcely dilated: last ventral entire.

This species resembles greatly some of the smaller forms of *nigritulus*, but may be known by the tarsal structure and the thoracic punctures.

Occurs from Michigan to the District of Columbia.

A. pusio n. sp.—Piceous, shining; antennæ piceous, terminal joint pale, shorter than the head and thorax, joints 6–10 as wide as long; head oval, sparsely punctate at the sides; beneath sparsely punctate, shining; thorax shining, not wider than the head, very little longer than wide; sides feebly sinuate, punctures arranged in three irregular series on each side, the inner series sinuous, composed of seven or eight punctures; elytra a little wider than the thorax and notably

longer, longer than wide conjointly, shining, coarsely not closely punctate, sparsely pubescent; abdomen moderately shining, sparsely punctate: beneath less distinctly punctate. Length .11 inch: less than 3 mm.

Female.—Anterior tarsi scarcely at all dilated; last ventral entire.

This is the smallest species known to me in our fauna. It resembles *parcus*, and differs in the darker legs and antennæ, more finely and irregularly punctured thorax and more coarsely punctured elytra.

Two specimens, Garland, Colorado.

A. gratus Lec.—Form moderately elongate, reddish yellow, rather shining, metasternum, tip of abdomen and elytral space black; antennæ nearly as long as the head and thorax, rather slender, nearly black, the two basal joints pale; head quadrate, coarsely not densely punctured at the sides: beneath obsoletely sparsely punctate; thorax not wider than the head, longer than wide, slightly narrowed posteriorly; sides slightly sinuate, median space smooth; sides rather coarsely moderately closely punctured; elytra slightly wider than the thorax and somewhat longer, longer than wide conjointly, moderately closely punctate, yellow, with a large oval piceous spot, which joins the side margin: abdomen much less coarsely punctured than the elytra; beneath more shining and more coarsely punctured than above, last two segments black. Length .20 inch: 5 mm.

Male.—Anterior tarsi broadly dilated; last ventral segment with rather large oval emargination.

Female.—Anterior tarsi narrowly dilated: last ventral entire.

A pretty species, varying in the size of the elytral spot, and is easily known by being the only one in our fauna with a pale head.

Occurs in the south of California and Arizona.

A. pæderoides Lec.—Form slender, elongate; head, body, elytra and tip of abdomen black: thorax, base of abdomen and legs yellow; antennæ slender, piceous, three basal joints paler, joints 6–10 as wide as long; head black, neck yellow; surface coarsely sparsely punctate, a median smooth space; beneath sparsely coarsely punctate; thorax oblong, not wider than the head, slightly narrower behind; sides distinctly sinuate, punctures coarse, not densely placed, leaving only a narrow smooth space; elytra black, shining, sometimes slightly bluish; apex narrowly margined with testaceous, punctures rather coarse not densely placed; surface sparsely pubescent: abdomen finely moderately densely punctate, finely pubescent; beneath more distinctly punctured than above. Length .14—.18 inch; 3.5—4.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral with a feeble emargination and slight triangular impression.

Female.—Anterior tarsi slightly dilated; last ventral entire.

There is some variation in sculpture as well as in size in this species. The eastern forms, more especially those from the northern regions, are more coarsely punctured and of larger size; the California and Arizona specimens are always smaller, and with a finer and slightly denser punctuation.

Occurs everywhere from Canada to Florida, and westward to the Pacific coast.

A. jocosus n. sp.—Form elongate, rather slender, parallel; antennæ nearly as long as the head and thorax, brown, the basal joints testaceous, apical joint pale brown, joints 5–10 as broad as long; head quadrangular, black, shining, coarsely not closely punctate, a small median smooth space; beneath very sparsely punctate; thorax scarcely wider than the head, oblong, very slightly narrowed behind, sides slightly sinuate, surface coarsely not closely punctate, a narrow median smooth space, color reddish yellow; elytra nearly parallel, very little wider, but distinctly longer than the thorax, color piceous, shining, apical margin not pale, surface relatively coarsely and closely punctate, very sparsely pubescent; abdomen reddish yellow, the two apical segments paler; surface moderately closely punctate, very feebly shining, sparsely pubescent; beneath as above; legs pale yellow, metasternum piceous. Length .18 inch; 4.5 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with a small triangularly oval emargination.

Female.—Last ventral entire; anterior tarsi narrowly dilated.

I have seen but two specimens of this species. It is larger than *pæderoides*, the elytra longer and more coarsely punctured and without apical pale border.

Occurs in Delaware and North Carolina.

A. jucundus n. sp.—Form, size and color of *pæderoides*, and differs by the surface, especially the elytra more densely punctured and opaque, and the apical pale border of the elytra broader, and gradually wider externally; the head is distinctly narrower behind the eyes. Length .14 inch; 3.5 mm.

I have seen but two specimens, both apparently females.

Occurs in South Carolina, and seems to be rare.

A. elegantulus n. sp.—Slender, elongate, pale yellow; head and elytral spot black, metasternum and tip of abdomen above piceous; antennæ slender, nearly as long as the head and thorax, piceous, basal joint paler, joints 7–10 nearly as wide as long; head oval, distinctly narrower behind the eyes, shining, coarsely punctate at the sides and beneath; thorax not wider than the head, oblong, distinctly narrowed behind, sides sinuate, sparsely coarsely punctate at the sides; elytra a little wider and longer than the thorax, longer than wide conjointly; surface very shining, coarsely and sparsely punctate, very slightly pubescent; color yellow, with an oval spot, black on each side, of variable size; abdomen shining, very sparsely punctate, and with very little pubescence, terminal two segments darker in color; beneath shining, very sparsely punctate. Length .16—.18 inch; 4—4.5 mm.

Male.—Anterior tarsi slightly dilated; last ventral with a broad, but not deep oval emargination.

Female.—Anterior tarsi feebly dilated; last ventral entire.

A pretty species, easily known by its very sparsely punctate surface, and by the elytra almost entirely yellow.

Occurs in southern California and Arizona.

A. terminalis Lec.—Form slender, pale reddish yellow, head, metasternum, elytra in part, and last two segments of abdomen black; antennæ pale brown, nearly as long as the head and thorax, joints 6–10 as broad as long; head quadrate

oval, coarsely punctured at the sides, sparsely coarsely punctured beneath: thorax not wider than the head, oblong, narrower behind; sides distinctly sinuate, a median smooth space, at sides coarsely and deeply, not closely punctured; elytra a little wider and longer than the thorax, conjointly longer than wide, coarsely not densely punctured, sparsely pubescent, color black at basal two-thirds, reddish yellow at apical third; abdomen shining, coarsely very sparsely punctate, sparsely pubescent; beneath as above. Length .18 inch; 4.5 mm.

Male.—Anterior tarsi slightly dilated; last ventral with slight oval emargination.

Female.—Anterior tarsi scarcely at all dilated; last ventral entire.

This species, in color and general appearance, resembles *pæderoides*, but the elytra are more widely yellow at tip, and the abdominal punctures much coarser and far less dense.

The species as above defined is divided by Fauvel into two,—*Schmelteri* and *terminalis*. The former is really the typical form, and has darker antennæ, and the elytra are more evidently punctured; the latter has pale antennæ and less distinctly punctured elytra. With more specimens than I now possess it is possible that two distinct species could be defined, at present I prefer to retain them as one. Should they prove distinct the names suggested by Fauvel should be reversed.

Occurs from Canada to Middle States, also in Texas.

A. umbripennis Lec.—Form of *terminalis*; antennæ piceous, paler at base, shorter than head and thorax, joints 5–10 at least as wide as long, the outer ones quite transverse; head oval, distinctly narrowed behind the eyes, piceous, shining; surface numerously punctured, beneath very sparsely punctate: thorax not wider than the head, longer than wide, slightly narrowed behind; sides distinctly sinuate, disc smooth at middle, punctured at the sides; metasternum pale reddish brown; elytra wider than the thorax and a little longer, longer than wide conjointly; surface moderately punctate, sparsely pubescent, color piceous, the apical margin narrowly testaceous; abdomen reddish brown, the two apical segments usually darker; surface coarsely sparsely punctate, sparsely pubescent; beneath darker than above, the segments broadly paler at tip, punctuation closer than above. Length .14 inch; 3.5 mm.

Male.—Unknown.

Female.—Anterior tarsi moderately dilated; last ventral entire.

This species might be confused with *terminalis*, but the elytra are colored as in *pæderoides*. The punctuation of the upper surface is much less pronounced than in either of the two species named. The last two ventral segments are never so distinctly darker, and some specimens have the abdomen uniformly brown in color.

Occurs from Pennsylvania to Florida.

A. lepidulus Lec.—Form slender; antennæ brown, nearly as long as the head and thorax, joints 7–10 as wide as long; head broadly oval, very distinctly narrowed behind the eyes, black, shining, with very few punctures; beneath paler in color, with a few coarse punctures; thorax yellow, not wider than the head,

longer than wide, slightly narrower behind; sides distinctly sinuate, punctures arranged in three very irregular series on each side, not numerous; elytra a little wider and longer than the thorax, a little longer than wide conjointly, piceous, apical margin narrowly testaceous, punctures moderate in size and very sparsely placed; surface shining, pubescence very sparse; abdomen uniformly brown, apices of segments paler, very shining, punctuation and pubescence very sparse; beneath uniformly brownish testaceous, punctured as above; metasternum piceous. Length .13 inch; 3.5 (nearly) mm.

The only specimen known to me is a female. The anterior tarsi are scarcely at all dilated. This species resembles *umbripennis* more closely than any other, and is known by the very sparsely punctate surface and somewhat longer and more slender antennæ.

One specimen, Georgia.

CAFIUS Steph.

This genus was first defined by Stephens, but not recognized as sufficiently distinct from Philonthus by Erichson, by whom the species were placed as a section of the latter genus. The characters are really feeble but sufficiently constant, and the facies is certainly sufficiently well marked.

The posterior tarsi are constructed in the same manner as in Philonthus, that is, the first joint is quite long and rather longer than the fifth. The last joint of the palpi is described by Fauvel (Faune Gallo-Rhénane) as securiform, but I think this too strong a term, and the shape is to be better expressed by — elongate oval flattened, more convex on the inner side.

The species of Cafius have a very characteristic facies except as to the first two species. These should probably be referred to Sharp's genus Phucobius (Trans. Ent. Soc. Lond., 1874, p. 35). In its habitat Cafius is confined to the sea-coast and margins of tide-water streams. Of the ten species known in our fauna two belong to the Atlantic coast the others to the Pacific.

The following table is arranged more for convenience in the recognition of species than as exhibiting any relation among them based on facies, the latter I have attempted to indicate by their position on the subsequent pages.

The characters made use of in the table are sufficiently plain without explanation except, possibly, the reference to the sharply defined median space of the thorax. In all the species except *femoralis*, the median space is more convex, and is sharply limited by the lateral punctures; in that species, however, the median space is not more convex, and the limit of the smooth space is very irregular.

Thorax as wide, or wider than long, smooth at the sides; anterior femora with short spinous hairs beneath.

Raised line at base of dorsal segments scarcely sinuate; ventral segments not unequally punctate..... **canescens.**

Raised line very sinuous at middle; last two ventral segments much more densely and finely punctured..... **seminitens.**

Thorax longer than wide, more or less narrowed behind, sides punctured; anterior femora simple.

Antennæ rather slender, joints 3–10 nearly equal in length, and twice as long as wide..... **opacus.**

Antennæ shorter and stouter, joints 3–10 gradually decreasing in length, the outer ones square, or even transverse in some.

Median smooth space not sharply limited, and not more convex. **femoralis.**

Median smooth space sharply defined, and very distinctly more convex.

Head with very large punctures both above and beneath. **lithocharinus.**

Head always more finely and sparsely punctured beneath than above.

Elytra pale yellow..... **luteipennis.**

Elytra piceous or brown.

Elytra densely finely punctured, opaque..... **sericeus.**

Elytra closely punctate, not opaque, the punctures always distinct.

Thorax very coarsely punctured at the sides; median smooth space limited each side by a row of coarse punctures; thorax and elytra piceous, nearly black..... **bistriatus.**

Thorax coarsely punctured; median smooth space not limited by a row of punctures; thorax and elytra ferruginous. **decipiens.**

Thorax sparsely punctate at the sides, the punctures rather feebly impressed, thorax and elytra dark brown..... **sulcicollis.**

C. canescens Mann.—Form parallel, piceous, very faintly bronzed, side margin of elytra often paler, clothed with fine gray silken pubescence; antennæ stout, piceous, attaining the middle of the thorax, the joints 4–10 not longer than wide, gradually broader; head moderately large, quadrate, slightly wider behind the eyes; surface shining, front broadly sulcate at middle, a broad fovea each side; posteriorly a few large ill-defined punctures; beneath sub-opaque, with a few punctures; thorax not larger in area than the head, broader than long, scarcely narrower behind; sides distinctly sinuate, disc smooth, vaguely sulcate each side of middle, the sulci with a row of about ten punctures, the intermediate space more convex and more elevated posteriorly, extreme side margin opaque, with a few indistinct punctures; elytra a little wider than the thorax, longer than wide conjointly, densely punctate and sub-opaque, finely pubescent; abdomen sub-opaque, punctuation moderately dense and finer than on the elytra, pubescence fine, holosericeous, each segment with a vague fovea on each side, the basal elevated line simply feebly arcuate; beneath coarsely sparsely punctate, sparsely pubescent; legs and coxæ piceous. Length .36—.40 inch; 9–10 mm.

Male.—Anterior tarsi broadly dilated; last ventral with an elongate triangular incisure, the penultimate also slightly sinuate at middle.

Female.—Anterior tarsi moderately dilated; last ventral entire.

In this and the next species the anterior femora are provided with slightly spinous but very short hairs on the under side. They belong to *Phucobius* Sharp.

Occurs abundantly on the Pacific sea-coast.

C. seminitens n. sp.—Form and color of *canescens;* antennæ piceous, short, scarcely passing the hind angles of the head, joints 4–10 wider than long, gradually broader externally, the outer joints very transverse; head as in *canescens,* a frontal and vertical median impression, a few large punctures often in a series on each side converging at the occiput, under side alutaceous, more distinctly punctate than *canescens;* thorax as in *canescens,* very shining; sulci obliterated, and replaced by a few large distantly placed punctures; median line vaguely impressed anteriorly; side margin sub-opaque, with a few coarse punctures; elytra as in *canescens;* abdomen with punctuation and pubescence as in *canescens;* basal line bisinuous at middle; beneath with two apical segments very closely punctate, the anterior segments very sparsely punctate; legs piceous. Length .36—.40 inch; 9–10 mm.

Male.—Last ventral segment triangularly emarginate, and on each side sinuate; anterior tarsi moderately dilated.

Female.—As in *canescens.*

This species closely resembles *canescens,* but is abundantly distinct by the shorter antennæ, the thoracic sculpture, the form of the raised abdominal line and the ventral punctuation.

Occurs on the California sea-coast, but is more rare than *canescens.*

C. lithocharinus Lec.—Form elongate, depressed, piceous; elytra with side margin and apical spot luteous; legs rufo-testaceous; antennæ piceous, barely reaching the middle of the thorax, joints 4–10 nearly square; head large, quadrate, larger in the male, and larger in area in both sexes than the thorax; surface opaque, alutaceous, a smooth median space; sides with coarse rather closely placed variolate punctures; beneath less opaque, coarsely punctate; sub-mentum very opaque, black; thorax narrower than the head, longer than wide, narrowed posteriorly; sides distinctly sinuate; surface opaque, the median space smooth, shining, more convex, not defined by a row of punctures; sides moderately coarsely and closely punctate, the punctures much finer than those on the head; elytra wider and longer than the thorax, longer than wide conjointly, lateral margin and apical spot pale, finely and closely punctate, finely pubescent; abdomen piceous the apical segment sometimes ferruginous, rather finely but not closely punctate, finely pubescent, elevated line at base of segments straight; beneath piceous, the apical segment and the sides often ferruginous, very sparsely finely punctate. Length .24—.36 inch; 6–9 mm.

Male.—Anterior tarsi slightly dilated; last ventral segment with small triangular emargination, the entire apical margin with a pellucid border.

Female.—Anterior tarsi nearly as broad as in the male; last ventral entire, with a narrow pellucid margin.

The apical pale spot of the elytra varies; it is sometimes entirely wanting, and rarely extends across the entire apex. The species is readily known by the very coarse punctuation of the head on both the upper and under sides.

Occurs on the California sea-coast.

C. luteipennis n. sp.—Form moderately elongate, piceous; elytra pale yellow; antennæ piceous, and very nearly as long as the head and thorax, joints 3–10 gradually decreasing in length, the outer ones nearly square; head quadrate, similar in the sexes; surface moderately shining, a rather broad median smooth space; sides with coarse, not closely placed punctures; beneath more sparsely and finely punctured than above; sub-mentum opaque; thorax as wide as the head, longer than wide, narrowed behind; sides distinctly sinuate, median smooth space more convex, more elevated posteriorly, not defined by a row of punctures, lateral region less coarsely punctured than the head; elytra longer and wider than the thorax, longer than wide conjointly; surface finely and moderately densely punctured, finely pubescent; abdomen piceous, the apical segment sometimes paler, punctuation finer but less dense than on the elytra, pubescence fine and brown: beneath more shining, the apical segment and often the sides paler, punctuation a little coarser but sparser than above; legs and coxæ piceous. Length .22—.28 inch; 5.5—7 mm.

Male.—Anterior tarsi rather widely dilated; last ventral segment with a small broadly triangular notch with pellucid border.

Female.—Anterior tarsi moderately dilated; last ventral entire.

A pretty species, readily known by the pale yellow elytra. It is related to *lithocharinus* by its form, but differs too plainly to require special comparison.

Occurs on the California sea-coast.

C. bistriatus Erichs.—Piceous, elongate, legs and coxæ rufo-testaceous; antennæ piceous, nearly as long as the head and thorax, not stout, joints 5–10 as wide as long; head quadrate, sub-opaque, a median smooth space widening in front and including the entire clypeus; sides coarsely not closely punctate; beneath more shining, coarsely punctate at the sides; sub-mentum opaque, black; thorax not wider than the head, longer than wide, narrower posteriorly; sides sinuate, median smooth space sharply defined each side by a row of closely placed punctures: sides less coarsely punctate than the head; elytra wider and longer than the thorax, longer than wide conjointly, rather finely and closely punctate, finely pubescent; abdomen piceous, above and beneath more finely and closely punctate than the elytra. Length .24—.30 inch; 6.—7.5 mm.

Male.—Anterior tarsi slightly dilated; last ventral with a triangular emargination, which has internally a pellucid border.

Female.—Anterior tarsi slightly dilated; last ventral entire.

There is a very distinct line of larger punctures defining the median smooth space, and between them and the normal lateral punctuation is another narrow smooth space. A similar character is observed in *sulcicollis*.

Occurs on the Atlantic coast and on the margins of tide-water streams.

C. sulcicollis Lec.—Form elongate, depressed, color brown, head darker, legs paler; antennæ brown, nearly as long as the head and thorax, joints 4–10 not longer than wide; head quadrate, dark brown, opaque, alutaceous, a median and frontal impunctured space; sides sparsely not coarsely punctate; thorax not wider than the head, longer than wide, narrower behind; sides distinctly sinuate, median smooth space more convex, indistinctly limited with fine punctures irregularly

placed; sides sparsely finely punctured; elytra wider and longer than the thorax, longer than wide conjointly, densely finely punctured, very feebly shining, finely pubescent; abdomen a little more finely and as densely punctured as the elytra; beneath less densely punctured. Length .20 inch; 5 mm.

Male.—Not seen.

Female.—Anterior tarsi slightly dilated; last ventral entire.

More closely related to *bistriatus* than any other, yet plainly distinct by many characters.

Occurs on the California sea-coast.

C. femoralis Mäklin.—Form slender, depressed, piceous, sub-opaque, femora and coxæ testaceous; antennæ piceous, nearly as long as the head and thorax, joints 3–10 gradually decreasing in length, joints 8–10 as wide as long; head quadrate, opaque, alutaceous, median space less punctured; sides coarsely and closely punctured; beneath less coarsely punctured than above, sub-mentum shining; thorax not wider than the head, longer than wide, narrower posteriorly; sides distinctly sinuate, median space not more convex, not distinctly limited, punctures at sides dense and rather fine; elytra wider and longer than the thorax, conjointly longer than wide, densely finely punctured, but not opaque, finely pubescent; abdomen densely finely punctured, more shining beneath, finely pubescent; femora and coxæ pale, tibiæ and tarsi piceous. Length .24 inch; 6 mm.

Male.—Not seen.

Female.—Anterior tarsi slightly dilated; last ventral entire.

At first sight this species resembles *bistriatus*, but is easily known by the color of the legs and by the indistinctly limited median space of the thorax.

Occurs on the coast of Alaska.

C. sericeus Holme.—Form slender, depressed, piceous, nearly black, opaque; antennæ piceous, nearly as long as the head and thorax, joints 4–10 nearly square; head quadrate oval, a median smooth space broader on the occiput; sides rather coarsely punctate; beneath punctate at the sides, nearly smooth at middle, submentum sub-opaque; thorax as wide as the head, longer than wide, very little narrower posteriorly; sides feebly sinuate, median smooth space well defined, but not limited by a median row of punctures, more convex, especially posteriorly, at sides finely punctate, the punctures less dense anteriorly; elytra longer and wider than the thorax, longer than wide conjointly, very densely finely punctured and opaque, finely pubescent; abdomen above and beneath very densely finely punctulate, more shining than the elytra. Length .14—.16 inch; 3.5—4 mm.

Male.—Anterior tarsi moderately dilated; last ventral segment with an oval emargination.

Female.—Anterior tarsi slightly dilated; last ventral entire.

A common European species, apparently rather rare with us. The American specimens are more slender than the European, but do not seem to differ otherwise. The specimens before me are from an uncertain locality, but possibly from Coney Island, near New York.

C. decipiens Lec.—Form moderately elongate and depressed, color reddish brown, thorax paler, head darker; antennæ pale reddish brown, nearly as long as the head and thorax, joints 4–10 as wide as long; head quadrate oval, opaque, alutaceous, an oval smooth space at middle; sides coarsely, not closely punctate; beneath much more finely punctate than above, sub-mentum black, opaque; thorax as wide as the head, longer than wide, distinctly narrowed posteriorly; sides feebly sinuate, median smooth space more convex, without row of punctures each side; sides not closely punctate, the punctures finer than on the head; elytra wider, very little longer than the thorax, a little longer than wide; surface opaque, punctuation not very distinct, not dense, pubescence fine; abdomen more shining than the elytra, punctuation coarser and less close; beneath more finely punctured than above; legs brownish testaceous. Length .18—.20 inch; 4.5—5 mm.

Male—Anterior tarsi moderately dilated; last ventral segment with a small triangular emargination with a pellucid border.

Female.—Anterior tarsi slightly dilated; last ventral entire.

This species is easily known by its small size and color.

Occurs on the California sea-coast at San Diego.

C. opacus Lec.—Form elongate, depressed, color ferruginous, elytra darker; antennæ slender, longer than the head and thorax, joints 3–11 nearly equal in length, twice as long as wide, color pale reddish brown; head quadrate oval, wider behind, longer in the male, reddish brown, sometimes piceous in front, opaque, median smooth space indistinct, rather densely punctate and alutaceous; beneath more sparsely punctured than above, more shining, sub-mentum shining; thorax not wider than the head, longer than wide, slightly narrowed behind; sides feebly sinuate, median smooth space more convex; sides moderately closely punctate and sub-opaque; elytra wider, very little longer than the thorax, longer than wide conjointly, sub-opaque, densely punctulate and finely pubescent; abdomen more shining, less closely and more coarsely punctured than the elytra; beneath punctured as above. Length .26—.34 inch; 6.5—8.5 mm.

Male.—Anterior tarsi broadly dilated; last ventral with a triangular emargination, the inner border pellucid.

Female.—Anterior tarsi nearly as wide as in the male; last ventral entire.

The color of this species is somewhat variable from rufo-ferruginous to brown. It is the only one in our fauna with the antennæ longer than the head and thorax.

Occurs on the California sea-coast.

Additions and Notes.

The following species was received too late to be inserted in its proper place:

P. inversus n. sp.—Form moderately elongate, piceous, very sparsely pubescent, thorax, elytra and legs rufo-testaceous; antennæ as long as the head and thorax, brownish, two basal joints testaceous, joints 4–10 quadrate, or slightly transverse; head piceous, oval, a few coarse punctures behind the eyes; thorax not wider than the head, oval, longer than wide, sides parallel, scarcely sinuate

posteriorly, dorsal punctures four moderately impressed, the posterior puncture more distant than the others; elytra a little wider than the thorax, slightly wider posteriorly, a little longer than wide conjointly, very slightly longer than the thorax, punctuation coarse, not densely placed; abdomen iridescent, punctuation very sparse and very much finer than on the elytra, beneath punctured as above. Length .20—.24 inch: 5—6 mm.

Male.—Anterior tarsi slender: last ventral segment with a broad but shallow emargination, bordered by a pellucid membrane.

Female.—Tarsi slender: last ventral entire.

This species is probably identical with a specimen ♀ loaned me by Mr. Fauvel with the name *Schwarzi*. Considering the material insufficient I passed it by, having used the name for a more imposing species. As will be observed by the sexual characters the species belongs to series D (ante p. 206), and to the quadripunctate division, and is most closely related to *distans* and *fallaciosus*. In these two species the dorsal punctures of the thorax are arranged with the first puncture more distant, notably so in *distans*, less in the other. In the present species the arrangement is reversed, the posterior puncture being more distant. By its sexual characters *inversus* is more allied to *distans*, but the last ventral ♂ has no longitudinal impression.

I have two anomalous female specimens, one of them has *three* dorsal punctures on each side, the second has *five* on one side and *four* on the other.

Garland, Colorado, kindly given me by Mr. E. A. Schwarz.

P. piger should be omitted from the table on p. 219, it is *Actobius senilis*, p. 226.

The species have, by the foregoing pages, been greatly increased in number beyond those now in our lists; many are here described as new, while a number have been recognized as identical with those of the eastern hemisphere.

Philonthus,	previously described	35,	new species	50.		
Actobius,	"	"	9,	"	"	14.
Cafius,	"	"	8,	"	"	2.

Regarding distribution, it is almost impossible to say anything in general, the following sketch will give an approximate idea:

	Actobius.	Cafius.	Philonthus.
Cosmopolitan species		..	4
Atlantic Region	10	1	25
Pacific Region	6	8	28
Canadian Region	5	..	8
Rocky Mountain Region	1	..	4
Arizona Region	...	..	5
Europe and Eastern United States	1	1	8
Northern Hemisphere	...	..	3

One species of Actobius (*semipunctatus*) occurs in the Rocky Mountain Region and Chili.

The *Atlantic Region* includes the entire country east of the Mississippi River, including Texas.

The *Pacific Region* is all that portion of the continent bordering the Pacific Ocean west of the Sieras.

The *Canadian Region* all the country north of the St. Lawrence and the Lakes. Many of the species found here cross the continent.

The *Rocky Mountain Region* includes Colorado, western Kansas, New Mexico and Utah.

The *Arizona Region* is limited to that territory.

While these divisions are somewhat arbitrary, they give some idea of the manner of distribution of our species.

Synonymy and Bibliography.

PHILONTHUS Curtis.

A

P. aeneus Rossi Faun. Etr. 1, p. 249; Erichs. Staph. p. 437.
politus Kby. Fauna Am. Bor. p. 91.
mandibularis Kby. loc. cit. p. 92.
Harrisi Mels. Proc. Acad. 1844, p. 35.
P. furvus Nord. Symb. p. 88; Erichs. Staph. p. 434.
californicus Mann. Bull. Mosc. 1843, ii, p. 230.
comptus Hald. Stansb. Exp. p. 375.
P. sericinus n. sp. (*idem* Fauv. mss.)
P. nitescens n. sp. (*idem* Fauv. mss.)
P. alutaceus n. sp. (*idem* Fauv. mss.)
P. perversus n. sp.
P. bucephalus n. sp. (*idem* Fauv. mss.)
P. umbratilis Grav. Micr. p. 170; Erichs. Staph. p. 445.
P. laetulus Say Trans. Am. Phil. Soc. iv, p. 450; Mels. Proc. Acad. 1844, p. 36.
P. gentilis n. sp.
P. asper n. sp.
P. politus Fab. Syst. Ent. p. 266; Erichs. Staph. p. 443.
P. irinus n. sp.
P. atratus Grav. Micr. 21, 23; Erichs. Staph. p. 439.
P. semiruber n. sp. (*idem* Fv. mss.)
P. basalis n. sp.
P. cautus Erichs. Staph. p. 446.
P. hepaticus Erichs. Staph. p. 451.
? varicolor Boh. Eugen. Resa 1858, p. 29.

B

P. gracilicornis n. sp.

P. umbrinus Grav. Micr. p. 169; Erichs. Staph. p. 464.
mœstus Grav. Mon. p. 47; Nordm. Symbol. p. 97.
boletarius Zimm. mss.

P. flavolimbatus Erichs. Staph. p. 471.

P. palliatus Grav. Mon. p. 53; Erichs. Staph. p. 474.
dispersus Fauv. mss.

P. pubes n. sp. (*idem* Fv. mss.)

P. grandicollis n. sp. (*idem* Fv. mss.)

P. puberulus n. sp. (*idem* Fv. mss.)

P. quadricollis n. sp.

P. Theveneti n. sp. (*idem* Fv. mss.)

P. debilis Grav. Micr. p. 35; Erichs. Staph. p. 472.

P. varians Payk. Mon. Staph. p. 45; Erichs. Staph. p. 470.
agilis Grav. Mon. p. 77.
niger Mels. Proc. Acad. 1844, p. 38.

P. longicornis Steph. Ill. Brit. Ent. v. p. 237; Fauvel, Faune Gall. Rhen. ii. p. 480.
scybalarius Nordm. Symbol. p. 94.
promptus Erichs. Staph. p. 929.

P. discoideus Grav. Micr. p. 38; Erichs. Staph. p. 474.
ruficornis Mels. Proc. Acad. 1844, p. 38.

P. thermarum Aubé Ann. Ent. Soc. Fr. 1850, p. 316; Fauvel Faune Gall. Rhen iii. p. 470.

C

P. alumnus Erichs. Staph. p. 490.
rufulus Fv. mss.
atriceps Fv. mss. (in cab. Horn.)

P. innocuus n. sp.

P. thoracicus Grav. Micr. p. 170; Erichs. Staph. p. 481.

P. fusiformis Mels. Proc. Acad. 1844, p. 38.

P. fulvipes Fab. Ent. Syst. i, 2, p. 526; Erichs. Staph. p. 485.
Horni Fv. mss.

P. occidentalis n. sp.

P. Schwarzi n. sp.

P. hudsonicus n. sp.

P. Pettiti n. sp. (*idem* Fv. mss.)

P. triangulum n. sp. (*idem* Fv. mss.)

P. ferreipennis n. sp. (*idem* Fv. mss.)

P. caurinus n. sp.

P. Crotchi n. sp. (*idem* Fv. mss.)

P. arizonensis n. sp.

P. micans Grav. Micr. p. 25; Erichs. Staph. p. 484.

P. lomatus Erichs. Staph. p. 482.
georgianus Sachse Stett. Zeit. 1852, p. 143.
viperinus Fv. mss.

P. cunctans n. sp.

P. æqualis n. sp.

P. brunneus Grav. Micr. p. 172; Erichs. Staph. p. 486.
sericans Grav. Micr. p. 171.
dimidiatus Say Trans. Am. Philos. Soc. iv, p. 450.
brevis Mels. Proc. Acad. 1844, p. 37.

D

P. cyanipennis Fab. Ent. Syst. i, p. 525; Erichs. Staph. p. 433.
cæruleipennis Mann. Brachel. p. 27.
P. blandus Grav. Mon. p. 72; Erichs. Staph. p. 458.
pulchellus Mels. Proc. Acad. 1844, p. 36.
pæderinus Sachse Stett. Zeit. 1852, p. 126.
P. quediinus n. sp.
P. sordidus Grav. Micr. p. 176; Erichs. Staph. p. 456.
P. cephalotes Grav. Micr. p. 22; Erichs. Staph. p. 455.
P. filicornis n. sp. (*idem* Fv. mss.)
P. inquietus Erichs. Staph. p. 928.
P. versutus n. sp.
P. ventralis Grav. Micr. p. 174; Erichs. Staph. p. 473.
anthrax Grav. Micr. p. 176.
P. distans n. sp. (*idem* Fv. mss.)
P. fallaciosus n. sp. (*idem* Fv. mss.)
P. inversus n. sp.
P. brevipennis n. sp.
P. Siegwaldi Mann. Bull. Mosc. 1843, ii, p. 230.
P. crassulus n. sp. (*idem* Fv. mss.)
P. parvus n. sp.
P. clunalis n. sp.
P. bidentatus n. sp.
P. virilis n. sp.
P. punctatellus n. sp.
P. nigritulus Grav. Micr. p. 41.
aterrimus Grav. Micr. p. 41; Erichs. Staph. p. 492.
picipennis Mäkl. Bull. Mosc. 1852, ii, p. 313.
pumilus Mann. Brachel. p. 32.
P. microphthalmus n. sp. (*idem* Fv. mss.)
P. decipiens n. sp. (*idem* Fv. mss.)
P. albionicus Mann. Bull. Mosc. 1843, ii, p. 231.
P. instabilis n. sp.
P. picicornis n. sp. (*idem* Fv. mss.)

E

P. serpentinus n. sp.
P. baltimorensis Grav. Micr. p. 163; Erichs. Staph. p. 503.
P. apicalis Say Trans. Am. Phil. Soc. iv, p. 451.
hæmaturus Erichs. Staph. p. 504.
P. quadrulus n. sp.
P. viridanus n. sp. (*idem* Fv. mss.)
P. confertus Lec. New Species 1863, p. 40.
P. Lecontei n. sp. (*idem* Fv. mss.)
P. aurulentus n. sp. (*idem* Fv. mss.)

ACTOBIUS Fauv.

A. cinerascens Grav. Micr. p. 49; Erichs. Staph. p. 509.
A. nanus n. sp.
A. inutilis n. sp.
A. fraterculus n. sp. (*idem* Fauv. mss.)
A. senilis n. sp. (*idem* Fauv. mss.)
A. infimus n. sp.
A. semipunctatus Fairm. et Germ. (*Othius*) Ann. Fr. 1861, p. 434.
A. ocreatus n. sp.
A. sobrinus Erichs. Staph. p. 512.
A. agnatus Erichs. Staph. p. 513.
A. patella n. sp.
A. loxatus n. sp. (*idem* Fauv. mss.)
A. puncticeps n. sp.
A. pusio n. sp.
A. parcus n. sp.
A. gratus Lec. New Species 1863, p. 38.
A. pæderoides Lec. loc. cit.
A. jocosus n. sp.
A. jucundus n. sp.
A. elegantulus n. sp.
A. terminalis Lec. loc. cit.
A. umbripennis Lec. loc. cit.
A. lepidulus Lec. loc. cit. p. 37.

CAFIUS Stephens.

C. canescens Mäklin Bull. Mosc. 1852, ii, p. 313.
C. seminitens n. sp. (*idem* Fv. mss.)
C. lithocharinus Lec. New Species 1863, p. 38.
C. luteipennis n. sp.
C. bistriatus Erichs. Staph. p. 502.
C. sulcicollis Lec. New Species 1863, p. 40.
C. femoralis Mäklin Bull. Mosc. 1853, iii, p. 189.
mutatus G. et H. Catalogus, p. 590.
C. sericeus Holme Trans. Ent. Soc. Lond. ii, 1837, p. 64; Erichs. Staph. p. 509.
C. decipiens Lec. New Species 1863, p. 40.
C. opacus Lec. loc. cit. p. 40.
dubius Lec. loc. cit. p. 39.